AVIATION

The Oldest American Aeronautical Magazine

APRIL 21, 1924 Issued Weekly PRICE 10 CENTS

Good luck! — The British World Flight starts off from Calshot, England

VOLUME XVI

NUMBER 16

SPECIAL FEATURES

THE FUTURE OF THE AIR TERMINAL

AIR MAIL INVITES BIDS ON MAIL PLANES

PROGRESS OF THE ROUND THE WORLD FLIGHTS

NATIONAL AND INTERNATIONAL AIR LEGISLATION

GARDNER PUBLISHING CO., INC.

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK

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PUBLISHER'S NEWS LETTER

The correspondence on the exact status of *U. S. Air Services* continues to fill the day's mail bag. We are pleased to know that *Slipstream*, now thoroughly civilianized, and an excellent contemporary as such, is also glad to add its word of protest against the improper methods used by the so-called "official" magazine of an Association, that has never held a meeting since it was organized five years ago. As *Slipstream* writes: "The U. S. Air Services Publishing Company is now profiting by very unfair methods. The very advantages which *Slipstream* held, but was restrained from using during its connection at McCook Field are, and always have been brought to play by this company.

"The use of the title 'U. S. Air Services' is unfair. It is as unfair and unlawful as the use of the American flag in advertising matter. They are using General Patrick's name and that of other high Air Service officials to gain prestige in the eyes of those seeking contracts with the Government."

AVIATION endorses every word of the above statement and for the information of those of our readers who may consider this "official" publication a "service" magazine like *The Infantry Journal* or others we quote from a letter of Secretary Weeks dated March 8, 1924:

"It is repeated that the Army and Navy Air Service Association bears to the Publishing Company solely the relation of a stockholder in a corporation. The Chief of Air Service further reports that he can find no evidence that the *United States Air Services* as a magazine answers in any way to the definition of a "service magazine." The Publishing Company is gaining in financial strength and the Association is now in turn in a fair way to realize something on its investment."

As the War Department and the Navy Department are now investigating the methods of this publication, we will defer publishing the results of our investigation until a final decision is reached.

* * * *

At a time when American Aviation is at a low ebb; when the aeronautical publications are struggling to keep alive; when the National Aeronautic Association cannot support itself but has to rely on generous benefactors, it is very disheartening to see the great support that can be secured in this country to foreign aeronautics while our own efforts are so poorly encouraged. We refer to the great publicity given to the Amundsen expedition to the North Pole and the raising of $200,000 for it by the sale of postal cards. A year or two ago, Mr. Amundsen was furnished with two American airplanes to make the attempt. He was advised to use skilled American pilots, but he did not do so. The expedition was a failure in more ways than this.

Then a new venture was planned. A Norwegian expedition was organized, German ships ordered, English engines specified and then American support asked. The Navy Department, in our opinion very unwisely, gave the expedition an official status by detailing a Navy aviator to fly in this entirely foreign enterprise. But up to this point the exploration was not commercialized. Then the snow storm of postal cards broke. First the aeronautical publications were tried, then the department store of John Wanamaker bought some and sold a few. And now when we pick up a paper, or listen to radio, we are told by the Gimbel store of the great possibilities of the scientific aspects of the Polar flight and asked to contribute, by buying postal cards, to a $200,000 fund.

* * * *

When the Shenandoah was going to the Pole, we heard much of discovering a "lost continent." Canada protested this as she makes very definite claims in this direction. As far back as 1911 there appeared in a Coast and Geodetic Survey publication, Arctic Tides, by Rollin A. Harris, a map of the polar regions which indicated the so called "lost continent" as an extension of Greenland, which belongs to Denmark. The existence of this extension has been questioned by recent explorers, but an interesting point is involved by an exchange of correspondence between the State Departments of Denmark and the United States in connection with the sale of the Danish West Indian Islands to the United States in 1917. The Hon. Robert Lansing, Secretary of State, made then the following declaration:

"That the Government of the United States of America would not object to the Danish Government extending their political and economic interests to the whole of Greenland." This important concession does not appear in the Treaty, but is in the form of a Declaration made August 4, 1916.

* * * *

We do not wish to get involved in a discussion of international law, but with Canada claiming all land as far north as the Pole, with the United States relinquishing any claims it may have had to the possible extension of Greenland, this country may find itself in a position to claim none of the discoveries in the Arctic. It would be a humiliating thing for American Aviation if an American Naval pilot using a German aircraft with a British engine should plant the Norwegian flag on land in the Arctic which may belong to Denmark. If this field of endeavor is open and has possibilities for the United States, let an American explorer follow Peary and bring prestige to our country.

APRIL 21, 1924

AVIATION

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Foreign Race Entries

A FINE point regarding the financing of foreign aircraft constructors by this country to compete with the government entries at Dayton next fall is being discussed by those interested in maintaining American supremacy in the air.

A French correspondent writes in this connection: "Mr. Patterson has offered to pay the expenses of French entries to the Pulitzer Trophy race next October together with those of the necessary repair, crew, etc., to and from the states." Looked at from the standpoint of the "gate" at Dayton and the greatly enhanced interest in the races that foreign competition would bring it is a splendid idea. It would also give American aeronautical engineers an opportunity to see the latest French airplanes.

So much for the advantages. The dangers of the proposal, however, are almost self evident. They were pointed out to us by an English friend. He takes the view that the foreign private constructor has little chance for success against the American Army or Navy because of the large sums that they have at their disposal for the construction of racing aircraft. If they come over at American expense and win, American constructors could rightfully expect that their expenses would be paid next year by European race managers. This has never been done, and the probability of its ever occurring is remote in his opinion. On the other hand, if the foreign entry loses, then, he believes, they will be under the double chagrin of not only losing, but having the world know that even when enticed by American financial assistance they could not beat American government airplanes.

But from the American viewpoint other questions arise. Should private foreign constructors have their expenses paid by us to stimulate them to build military machines that may excel the aircraft on which our own government has spent hundreds of thousands of dollars? Is the Pulitzer race a pure sport event, or does it answer the purpose of developing machines applicable to National Defense?

These are very pertinent questions, particularly as the slogan of the National Aeronautic Association is "Make America First in the Air." The Army and Navy will probably consider this new problem very carefully. We are frankly uncertain as to the question and open it for discussion as a matter of general interest.

Radio and Air Legislation

THE Bill pertaining primarily to radio that has been introduced by Senator Howell has an interest to those who have opinions as to the "freedom of the air."

The Bill states:

"Reaffirming the use of the ether for radio communication or otherwise to be the inalienable possession of the people of the United States and their Government, and for other purposes:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the ether and the use thereof for the transmission of signals, words, energy, and other purposes, within the territorial jurisdiction of the United States, is hereby reaffirmed to be the inalienable possession of the people of the United States and their Government, but privileges to enjoy such use may be granted as provided by law for terms of not to exceed two years."

If this bill should be passed it would establish the legal status of the air for both radio and flying. We have always believed laws for radio would simplify the problem of aviation legislation.

Function of the N.A.A. Contest Committee

AVIATION has repeatedly called attention to the fact that the Contest Committee of the National Aeronautic Association is exceeding the scope as set down for it in the regulations of the International Aeronautic Federation. At a recent conference in Washington it was pointed out to the Contest Committee that some of its present functions are not those required by the F.A.I. Regulations. The many errors occurring in the English translation of these regulations have become so apparent that a new translation is now being made, which, it is hoped will correct errors such as that of rendering *manifestation sportive* by "aeronautical event," when it merely means "contest."

Several pages could be filled in pointing out other, no less serious, errors that occur in the Aero Club of America translation of the F.A.I. Regulations, some of which actually reverse the meaning of the original text.

This matter becomes important on account of the announcement that the place for the 1925 Pulitzer Trophy race will be selected by July 1, next.

It is our contention that the Contest Committee has very little to do with "stability of promoters," "hotel accommodations," "car lines" or "good roads." These subjects pertain properly to the Executive Committee of the N.A.A. It is, in fact, a danger for a judicial body such as the Contest Committee to pass on such matters, for its function is to pass on the aeronautical qualifications of a field, to apply the F.A.I. Regulations, to supervise timing and enforce the race programs.

As the F.A.I. Regulations have just been revised by a special committee of the F.A.I., one of the most important duties of the N.A.A. is to see that the revised translation will be correct and clear so that everyone in aviation will know just what they mean.

navigation generally, shall, so far as applicable, be held applicable to commerce, transportation and navigation by air. It expressly provides that no carrier shall exempt or limit itself in whole or in part from liability by contract, receipt, rule or regulation as to liability for amount of recovery, or release the value of the property other than baggage, or by any limitation in any rate, charge, classification or tariff, or by other limitation. There is an exception for a limitation as to liability in regard to baggage; also where the carrier establishes and maintains differentials in its rates, based upon the value of the property to be declared in writing by the shipper and such limitation must be noted upon the bill of lading. No carrier shall provide for notice of loss, damage or injury to property to be given in a period of less than ninety days; nor a shorter time for the filing of a claim than 120 days; or a shorter time for the filing of a suit than two years from the notice in writing.

In other words, all existing laws are applied as much as possible to this proposed law of air navigation, such as custom administration in cases of foreign commerce, examination, immigration law, importing and exporting of narcotics and drugs; and offences against neutrality.

The proposed Act also provides for a civil aeronautic consulting board.

Yet, the proposed bill does not attempt to go as far as the British Air Navigation Act of 1920, which expressly states that no action shall lie in respect of trespass or in respect of nuisance by reason only of the reasonable flight of aircraft.

Common Law and the Air

If, then, aviation has proceeded more rapidly in its development than legislation, it is interesting to examine what the common law has done. Certainly the common law has always been able to decide problems that were not settled by statutes; yet, it remains a fact that statutory law is constantly asserting itself, and every lawyer knows that he must, in this day and time, first examine the statutes even before he looks up any cases on a subject. And after he has found the law expressed in a statute, he is wise to look up the cases to find out whether the law has been held to be constitutional or not.

At most of the law schools today, law is taught by the case system.

The following cases have been selected not only because they are interesting, but because they afford an opportunity to discuss the legal problems in regard to aviation that have been presented heretofore, and show the results of the common law treatment thereof.

Case No. 1—Trespass

One Guille, a balloonist, descended into the garden of one Swan. He called to a workman in Swan's field to help him. There was a crowd pursuing the balloon to see the landing thereof. The balloon dragged along over the garden of Swan, damaging potatoes and radishes. More than 200 persons broke into Swan's garden, and beat down his vegetables and flowers. The damage done by the balloon was about $15, but the damage done by the crowd amounted to about $75. Swan sued Guille for the entire damages, and Guille claimed he was not responsible for any damage done by the crowd. The court was of the opinion that Guille was undoubtedly liable for all the injuries sustained by Swan. It was the natural thing for a crowd to be drawn around a balloon, and Guille could well have foreseen the same.

Now according to the common law, Guille trespassed upon the property of Swan, and this trespass caused actual damage. This case was decided in the year 1812. (Guille v. Swan, 19 Johns (N. Y.) 381.)

A similar case occurred in Germany, where a balloon landed in a meadow near Frankfort when the ballast gave out. The inhabitants of the neighboring village swarmed out to the scene of accident, and in so doing, trampled a nearby garden to ruin. The owner brought suit against the aeronaut for damage to his vegetables, and the court awarded a judgment for the damage.

Now, this aeronaut did not actually trespass upon the vegetable dealer's garden—in fact, he was a long way from it The German Court was of the opinion that the aeronaut caused the damage by drawing a crowd. (23 Green Bag p. 398.)

The following is a summary of a Belgian case. Near a small town in Belgium, a balloon began to collapse from loss of gas. The pilot, seeing himself forced to land, selected an open space beyond the town. He was flying just above the roofs of the houses, with his guide rope dragging in the streets. The inhabitants, supposing he wished to be drawn down, seized the ropes. The aeronaut cried to them to release the rope, but his cries were assumed to be cries for help, and the crowd pulled the balloon to the earth. The pilot was forced to open his valve to release the gas. In a second story window of a house on the narrow street, a man sat smoking a cigarette. The cigarette ignited the escaping gas, which caused an explosion. Considerable property was destroyed, several people killed and many injured. The Belgian Court condemned the aeronaut to pay all the damages. (23 Green Bag p. 400.)

There is a French case where Maurice Farman, the airplane constructor, was sued by a number of landed proprietors, who alleged that they had been materially damaged because horses became frightened, and the noise of the engines was annoying; also that damage was done to fields when the machines landed. The attorney for Farman contended that the ownership of the land did not carry with it the right to the air above—else a landowner might claim the very stars in the sky. He admitted that under the French Law, everything above and below the surface belonged to the landlord, but he did not admit that this construction included air. The court awarded $100 damages to one farmer whose land had been damaged in landings, but declined to prohibit future flights. The substance of the decision was that aviators might fly over property, but if they caused damage, the owners of the property should proceed against them. (18 Va. L. Reg. 384.)

Comment

The subject of trespass by an aviator was discussed at great length by the American Bar Association at its annual meeting in 1921.

Major Johnson, in the Air Service Information Circular, expressed an opinion that in order to establish air rights in the United States, it was necessary to exercise the power of eminent domain. In other words, he carried out the analogy of a railroad which is empowered by a state to condemn the land it needs for its tracks, and to pay the reasonable value thereof.

Charles A. Boston was of the opinion that the burden was on the property owner to demonstrate that he had had such a property right in the air when in fact his possession of the surface was in no way jeopardized.

It is interesting to note that the German Civil Code clearly states that the right of the owner of land extends to the entire air space above the land, but limits this broad doctrine by stating that the landowner can only exclude persons from the use of the air space above his land if he has an interest in thus prohibiting such use. The Swiss Civil Code is quite similar.

In 1815 Lord Ellenborough, a prominent British Jurist, was not prepared to say that firing across a field amounted in the common law to trespass. (Pickering v. Rudd, 4 C.M.P. 219.)

But it has been held in the case of Whittaker v. Stangvick, (100 Minn. 386, decided in 1907) that it is trespass to shoot over another's land.

Prof. George Gleason Bogert has discussed these problems very thoroughly in an article entitled "Problems in Aviation Law," which was published in the *Cornell Law Review*, March, 1921.

It will be seen that common law is very technical on this subject of trespass, and the only way to change the common law is by statute. Now in England, this has been done in the British Air Navigation Act of 1920, which says no action shall lie in respect of trespass or of nuisance by reason only of the flight of aircraft over any property at a height above the ground which, having regard to wind, weather and all the circumstances of the case, is reasonable.

Nothing whatever is said in the Winslow Bill regarding trespass by airplane, and flights at reasonable heights over land, because the law of real estate is not a federal matter, but is left to each state. Therefore, the Committee on a Uni-

National and International Air Legislation

By POWELL CRICHTON

Attorney at Law

This investigation will attempt to point out some of the legal questions involved in connection with aeronautics; to summarize the progress made by the common law in solving questions that have arisen thereunder; and to analyse the International Convention relating to Air Navigation and also the statutes heretofore passed by some of the individual states in the United States, as well as the proposed Winslow bill now pending before the Congress of the United States. With regard to the latter bill the American Bar Association has agreed to a "hands off" attitude in the way of criticism, so the bill may be passed as soon as possible, and then permit the United States Supreme Court to decide whether the Act is constitutional or not.

There is no law on the statute books of the State of New York in regard to aviation, with the exception that §70 of the Insurance Law, Subdivision 9, was amended to permit insurance companies incorporated in this state to insure against loss or damage to airplanes, seaplanes, airships or other aircraft, and against loss or damage to property caused thereby, including loss by legal liability for damage to property resulting from the maintenance and use of (automobiles and) airplanes, seaplanes, airships, or other craft. * (L. 1919 Chap. 391, L. 1923 Chap. 814 §2.)

New York City Air Ordinance

There is, however, an ordinance in the City of New York which prohibits trick flying, and flying at a height of less than 2,000 ft. except at the beginning or end of a flight, and also prohibits throwing ballast, instruments, tools, or handbills, etc., from aircraft. One article thereof contains a regulation that airplanes shall pass each other to the right, and that balloons have the right of way over airplanes. The penalty for violating the ordinance is a fine of not less than $50 or imprisonment not exceeding one year, or both. This ordinance took effect on Feb. 23, 1921.

An interesting part of this New York City ordinance is the recital in the first section which reads as follows: "Until the Congress of the United States passes legislation to control and direct the operation of all aircraft over all of the territory and territorial waters of the United States, at which time the provisions of this ordinance shall automatically cease and become void."

Now, the Congress of the United States has, for several years, referred bills regarding aviation to its Committee on Interstate and Foreign Commerce. The bill which seems most likely to pass is known as the Winslow Bill. It was presented in the House of Representatives on Jan. 8, 1923, and its purpose is to create a Bureau of Civil Aeronautics in the Department of Commerce, and to encourage and regulate the navigation of civil aircraft.

It has, for a long time, been generally agreed that Congress *should* regulate air navigation, but it has been doubted whether the Constitution of the United States might not have to be changed in order to give Congress sole jurisdiction over this subject. Congress has exclusive jurisdiction over interstate commerce, and makes the laws regarding the same; also maritime commerce and admiralty; but Congress has no authority to pass a law that would apply to intrastate commerce except incidentally, because, under the Tenth Amendment to the Constitution, the states took back all powers not specifically delegated by the Constitution. Some states therefore have recognized their right to pass state legislation in regard to aviation. It is highly desirable that such legislation should be uniform. There are already existing a great many laws in various states which are known as uniform laws, such as the Bills of Lading Act, Negotiable Instruments Act and Sales Act.

If the Oregon Law, passed in 1921, is compared to the Massachusetts State Law, passed in 1919, considerable similarity will be noted. Each Act provides for an examination of all aviators; prohibits flying over buildings, persons or animals in such a manner and at such altitude as to endanger the life of the aviator, or the lives or safety of those below, or the safety of passengers; each Act prohibits throwing or dropping missiles from aircraft, and provides that landing places may be designated by public officials in the various cities, who, in turn, may make rules and regulations in regard to landing and departing therefrom. In Massachusetts, the department of the state in charge of such matters is the Highway Commission, while in Oregon, there is a State Board of Aeronautics appointed by the Governor. Each of these is empowered to make rules and regulations.

So, the Oregon Law does not differ very much from the Massachusetts Law, except that the Oregon Law is more detailed and provides more specifically for the granting and revoking of licenses given to aviators in that state. Of course an aviator should lose his license if he endangers the safety of the public; or is convicted of a crime; or is a habitual user of liquor, morphine, opium or other drug, or has physical defects which make him unfit to be an aviator and such defects arise after the granting of his license.

The Winslow Bill

The Winslow Bill provides for a Bureau of Civil Aeronautics under the Department of Commerce, with a head of the department to be known as the "Commissioner." It may perhaps beg the issue that air navigation is a unit and does not regard state lines and elements thereof, ordinarily subject to regulation by the state; it therefore assumes that the Federal Government has the right to regulate navigation of the air, and in doing so, if it regulates intrastate commerce, such regulation is incidental. It therefore provides that every aircraft must be registered and receive a certificate of registry. In this way, aircraft will be inspected and tested as to air worthiness—otherwise the certificates will not be issued. It provides that the Department shall make rules and regulations for air navigation, and it also provides that each aviator must obtain a pilot's certificate. He must pass an examination based upon the character, physical fitness, training and practical experience of the airman.

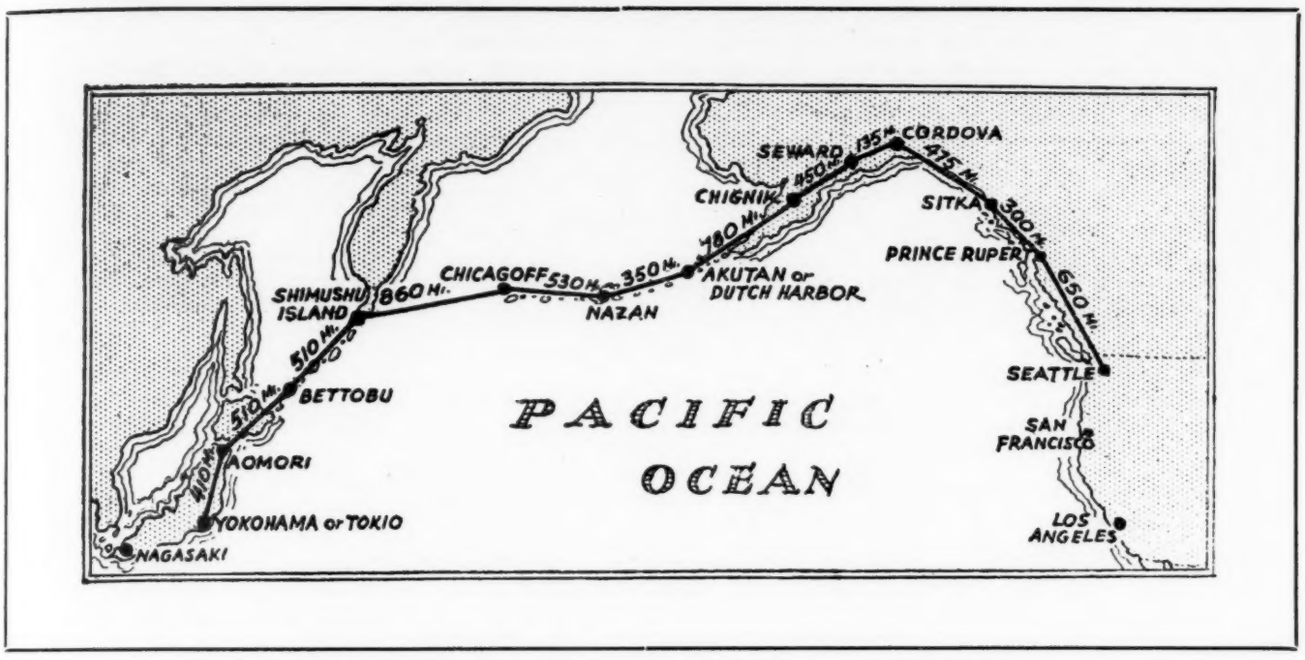
Each aircraft, like a ship, must keep a log book, and the Bill also provides that the Secretary of Commerce may designate and approve air routes suitable for air commerce in the United States, and air navigation facilities may be established by the Secretary and made available for public use. Any such Government establishment may sell to any aircraft alighting at such airdrome fuel, oil, equipment and supplies, and furnish it mechanical service, shelter or other assistance, and such articles shall be sold, and such assistance furnished, at their fair market value.

The proposed Act also contains provisions for ports of entry for foreign aircraft. The administrative provisions of the proposed Act confer investigating powers upon the Secretary or the Commissioner, and power to issue, suspend or revoke certificates. It also contains civil as well as criminal penalties. It expressly declares that the United States has, to the exclusion of all foreign countries, complete sovereignty in the air space of the United States, but adds that the Act shall not be construed to deprive the states of sovereignty in the air space above their land and waters except so far as granted to the United States as an incident to the powers delegated by the states to the United States by the Constitution.

It provides for the adoption of admiralty practice and suits for penalties, as well as civil suits, but permits a party to demand a trial by jury of an issue of fact if the controversy exceeds $20. It also provides that all laws of the United States which are applicable to commerce, transportation and

*A bill for the regulation of air navigation (No. 415) was introduced in the New York State Assembly on Jan. 22, 1924, by Assemblyman Ricca of Brooklyn.—EDITOR.

Progress of the Round the World Flights



Map showing itinerary of American World Flight from Seattle to Japan

American World Flight

The American World Flight squadron, commanded by Maj. Frederick L. Martin, A.S., covered on April 10 the second leg of its round the world flight, flying from Prince Rupert, B. C., to Sitka, Alaska, a distance of 300 mi. The flag plane Seattle, which had been damaged on landing at Prince Rupert, was repaired with spruce shipped there.

Storm warnings received from points North of Sitka prevented the four ships from proceeding on April 11 to Cordova, 475 mi. away, which is the next stopping place on the schedule.

The various stops as far as Japan are shown on the above map.

British World Flight

Some details are now on hand regarding the progress of the British World flight from Calshot to Corfu. The first day's journey, March 25, ended at Le Havre, where the ship ran into thick fog and only missed the cliffs of the French coast by making an Immelmann turn. Incidentally the pilot of the plane is Flying Officer Plenderleith, and not, as first stated, Squadron Leader Maclaren, who is the navigator and who is in charge of the expedition.

On the following day the Vulture flew from Le Havre to Lyon, and on March 27 she reached Civita Vecchia, near Rome. On the latter leg part of the flight was made in rain and thick clouds, and at San Remo the Vulture cut across the Mediterranean, flying by way of Corsica. On March 28 the plane left Civita Vecchia for Rome, and on getting off the port wing float was damaged. This was repaired by the Italian air force, and on March 30 the expedition left Rome for Athens. On landing at Brindisi the Vulture was got ashore with some difficulty owing to a contrary wind. This journey was very difficult on account of heavy rain, and Mr. Maclaren feared that the plane might not get across the Apennine range. He is said to be highly pleased with the use of the Reid control indicator when flying through clouds.

On proceeding from Brindisi to Athens, the Vulture was forced to land on Lake Korissia, in the island of Corfu, owing to engine vibration. Examination of the trouble showed that the propeller reduction gear had stripped on the Napier Lion engine, which made it necessary to have a new gearing shipped from London.

At the time of going to press the Vulture was still in Corfu.

The Canadian stops of the British World Flight route will be as follows: Prince Rupert, Edmonton, Regina, Winnipeg, Sault Ste. Marie, Toronto, Montreal, Riviere-du-Loup, Fredericton, Amherst and Sydney, N. S. From the latter place the Vulture will fly to St. John's, N. F., where she will be prepared for the trans-Atlantic flight—either to the Azores (1200 mi.) or to Ireland (1950 mi.), which will depend on how much the plane is pressed for time. It appears that the schedule of the British World Flight calls for a return at Calshot on June 27, 1924.

Books on Aeronautics

Research University, 20 Jackson Place, Washington, D. C., will send for the cost of booking and mailing to any person who will send twenty-five cents in stamps, a copy of each of the following booklets, which are of value to persons interested in aviation: "Airplane Motors," a course in practical instruction in their care and overhauling; "Aeronautical Terms," "Notes on Rigging," for air mechanics; "English French Glossary of Aeronautical Terms;" "Airplane Instruments;" "Signal Corps Training Manual."

Special courses in aviation subjects are taught by the university, which is a non-profit service. The trustees and faculty are principally made up of government employees.

France Honors Wrights

Orville Wright has just been promoted officer of the French order of the Legion of Honor, and his sister, Miss Catherine Wright, has been appointed an officer of the Instruction Publique on the occasion of the 20th anniversary of the first human flight.

Strength of Italian Air Squadrons

Under the new organization scheme of the Italian air force, the number of planes per squadron for the different specialties has been fixed as follows: Pursuit 12, Observation 12, Day Bombardment 8, Night Bombardment 6, Seaplane Squadrons 9.

form Aviation Act, which was appointed by the American Bar Association, of which Professor Bogert was Chairman, in its proposed Uniform Law for Aeronautics, attempts to solve this problem. Section 3 thereof admits and declares that the ownership of space above the lands and waters of the state is vested in the several owners of the surface beneath, subject to the right, of flights described in Section 4. This provides that flight in aircraft over such lands and waters is lawful *unless at such a low altitude as to interfere with the existing use to which the land or water, or the space over the land or water, is put by the owner or owners, and so conducted as to be eminently dangerous to persons or property lawfully on the land or water beneath.*

Case No. 2—Negligence

The plaintiff, an infant six years old, attended a county fair in company with her mother. She was injured by an airplane used as an attraction at said fair, when the airplane alighted and the machine swerved from its course so that a wing struck the plaintiff. The suit was based on negligence, and was brought against the county fair. The court held that the defendant owed an active duty to such persons as attended the fair to guard them from injury by means and measures which were reasonable and which would be suggested by prudence and foresight; that the county fair had not exercised ordinary and reasonable prudence—first, that there was insufficient policing, and second, the landing place was not sufficiently fenced off.

This case is entitled Platt v. Erie County Agricultural Society, (164 App. Div. 99, 149 N. Y. Supp. 520) and was decided in October, 1914. The court refused to consider the point that the aviator was an independent contractor, because even so, the county fair had the duty imposed upon it to use reasonable precaution to protect those invited to witness the exhibition.

There was a similar case decided in 1909 (Roper v. Ulster County Agricultural Society, 136 App. Div. 97, 120 N. Y. Supp. 644) where there was a balloon ascension, and a sandbag rope caught the plaintiff about the ankle and threw her down, dragging her for some distance. She caught the rope in her hand, and was carried several hundred feet in the air. The defendant claimed the aeronaut was an independent contractor. The court submitted the question to the jury whether the defendant Agricultural Society had provided plaintiff with a safe place to see the exhibition. The jury decided that a safe place had not been provided, and that the Agricultural Society had also failed to give warning regarding the danger.

Comment

Now, in these cases, neither the balloon nor the airplane was considered a dangerous instrumentality—the question concerned the safety of the audience invited to watch the ascension.

Now, this would seem the best place to discuss the question of absolute liability for injury caused by an airplane.

An excellent article by the Hon. William P. MacCracken, Jr., of the Chicago Bar, entitled, "Aeronautical Legal Problems" may be found at page 637 in the Aircraft Yearbook for 1923, published by the Aeronautical Chamber of Commerce.

Mr. MacCracken points out that §5 of the proposed Uniform Aviation Act provides for damage on land caused by the ascent, descent or flight of the aircraft, or the dropping or falling of any object therefrom.

The owner of an aircraft is made absolutely liable for injury to persons or property, whether such owner was negligent or not, unless the injury is caused in whole or in part by the negligence of the person injured, or the owner or bailee of the property injured. If the aircraft is leased at the time, both owner and lessee shall be liable, and may be sued jointly or separately; and an aeronaut who is not the owner or lessee shall be liable only for the consequences of his own negligence. The injured party is given a lien on the aircraft to the extent of the damage caused.

On this point it has been frequently suggested that an aviator or the owner of an airplane should be required to give a bond to insure liability for damage. There is a law in the United States where Army aviators are used to give exhibition flights. The Secretary of War is authorized to require a bond of indemnity to be furnished to the Government by the parties desiring the exhibition; the purpose of the bond being to guarantee the payment of any damage to persons or property. This law is known as §1867 of the U. S Compiled Statutes, Title XIV, The Army, passed March 2, 1923, C.178, Title 1.

Professor Hazeltine, of Cambridge University, says that the doctrine of absolute liability is justified on the general principles and doctrines of the law.

In the book entitled "Aircraft in Peace and the Law" by J. M. Spaight, published in London in 1919, Mr. Spaight, at page 82, says:

"It is not only supported by reasons of right and equity thereof, but there are for admitting it two practical arguments which should appeal to statesmen. In the first place, the liability will in practice be met by insurance, and it is a much more practicable proposition to place the duty of insuring upon limited body of aircraft owners than upon the population at large. In the second place, it rests with aircraft owners to increase the factor of safety in flight, and they will be more inclined to secure the safety of their machines if liability for accidents is declared *their responsibility*, without any conditions."

There can be little question in the minds of reasonable men as to who should suffer the consequences, the airman who causes the injury, or the innocent person who suffers the injury.

In a draft bill prepared by the American Bar Association, the owner or lessee of an aircraft was required to file in an official place, a bond to answer for all damages that may result to any person as an incident to a voyage undertaken.

Similar laws have been passed in the State of New York to provide for taxicab drivers' putting up bonds prior to their getting licenses. It is a common occurrence in the City of New York for a taxicab driver to injure someone, and to have a suit against the driver result in the recovery of an uncollectable judgment.

But suppose two airplanes collide in the air, and the collision is caused by the fault of both parties; there could be no recovery under the common law, because of the rule of contributory negligence; but under the rule of admiralty, which would prevail after the passage of the Winslow Bill, the resulting loss would be divided between the two parties as in the case of collision between ships at sea.

(To be concluded)

Book Review

REPORT ON THE INTERNATIONAL AIR CONGRESS, LONDON, 1923. Edited for the Committee by Lt. Col. Lockwood Marsh, General Secretary. 978 pp. (Royal Aeronautical Society, 7 Albemarle St., London, England.)

This bulky volume contains all of the papers, some seventy in all, that were read before the International Air Congress held in London in the spring of 1923. These papers review the latest progress made in practically all the branches of aeronautics, covering such a diversity of subjects as Civil Air Transport, Heavy Oil Engines, Variable Pitch Propellers, Fundamentals of Fluid Motion, Aviation Insurance, etc.

The report will be of especial value to those having already a considerable knowledge of aircraft theory and practice, but wishing to be brought up to date on the latest developments and possibilities.

New Position Finding Method

A simple method of finding the latitude and longitude of aircraft by the observed altitudes of two stars and the chronometer reading has been worked out by the Bureau of Standards, Department of Commerce. The method consists in finding the angular altitudes above the horizon of two stars, such as Regulus and Betelgeuze. From this data the latitude and the local sidereal time can be found by means of a specially prepared diagram, and a simple calculation gives the longitude when Greenwich sidereal times is known.

Air Mail Invites Bids for New Mail Planes

Planes to be built around the Liberty Engine

Under date of April 7, the Post Office Department invited American aircraft manufacturers to submit proposals and quote prices, in lots of three, ten, twenty-five and fifty, for a type of mail plane to be built around the 400 hp. Liberty engine. This plane shall, primarily, be of rugged construction, with a pronounced safety factor and be designed for cross-country work. Maneuverability should be good at all speed down to stalling speed, and visibility should be excellent, with as few blind angles as possible.

The only specifications outside of the Liberty engine, as fixed by the Post Office Department, are as follows:

1. Cruising speed, at least 95 mi./hr.
2. Landing speed. 50 mi./hr., or less.
3. Service ceiling, 15,000 ft.
4. Pay load, not less than 1000 lb. of mail.
5. Cargo space, not less than 50 cu. ft.
6. Fuel sufficient to give the plane a cruising range of 450 mi.

How to Submit Bids

Sealed proposals, subject to the usual conditions, will be received at the Office of the Purchasing Agent, Post Office Department, Washington, D. C., until 10 a. m. June 9, 1924, at which time and place they will be publicly opened. Bidders have the right to be present, either in person or by attorney, and to examine and inspect all bids. The Post Office Department reserves the right to reject any or all bids, and to make award to one or more bidders. Bids must be signed by an authorized member of the company.

It is proposed to award contracts not later than July 1, 1924. The successful bidder will be required to furnish contract bond satisfactory to the Postmaster General in a sum equal to 20 per cent of the amount of the contract. Bidders must state the time of commencing delivery and the rate at which subsequent deliveries will be made. They must also furnish evidence satisfactory to the Postmaster General of their ability to execute the contract, if one is awarded. This evidence shall include a brief description of the manufacturing facilities of the bidder and of his experience.

Bidders are requested to state the discount which they will allow in payment of invoice if made within ten, twenty and thirty days from and including date of delivery of supplies to carrier when supplies are inspected and accepted at point of origin, or from and including date of delivery at destination when supplies are inspected and accepted at destination.

No person shall be received as a contractor for furnishing supplies of any kind whatsoever to the Post Office Department who is not a manufacturer of or regular dealer in the articles which he offers to supply.

Information Required

An accurately scaled, dimensioned, three-view drawing of the design must be submitted with the proposal. This drawing shall be in sufficient detail to indicate accurately all the physical characteristics of the airplane and the equipment installations and an estimated position for the center of gravity of the plane.

The bidder shall indicate the climb at ground and climb in ten minutes. He shall submit statement of materials and unit stresses thereof to be used in the construction of the main structural parts, and dimension sketches showing the method of construction to be used in the fuselage, landing gear, wings, tail surfaces, ribs, spars, and typical fittings. Provisions for landing lights on the wings shall be made.

Crash-proof gasoline tanks, conforming to Army specifications, shall be furnished and installed by the manufacturer, unless the tanks are installed in the wings, in which case the manufacturer may use any type of tank he desires. Fuel tanks droppable in the air by an instantaneous releasing mechanism are desired. Engine starters may be provided.

Provision shall be made in the seating arrangement so that a seat type parachute may be worn by the pilot.

The Post Office Department will furnish the engine. All other material, including instruments, shall be furnished by the manufacturer.

Two sets of blueprints from which the airplane has been constructed must be delivered to the Post Office Department by the contractor. So that the Post Office Department may maintain, care for, and repair airplanes purchased under this proposal, the manufacturer shall furnish the Department with all drawings, plans, etc., in detail.

It is of primary importance that the design will be such as will insure ease of production, easy and rapid installation of power plant and equipment, and ease of general maintenance. No consideration will be given to any airplane of foreign design or construction.

Flying Tests

Before any airplane is accepted and paid for by the Post Office Department under this proposal, it must be demonstrated by its manufacturer to be capable of performing as it may have been agreed that it perform in the purchase contract. Such demonstration shall be made before a committee consisting of the Second Assistant Postmaster General, the General Superintendent of the Air Mail Service, and one Air Mail pilot chosen by the first two. It shall be made on the field of the manufacturer, who shall furnish the pilot, and it shall include a flight of 100 mi. out from that field and 100 mi. back to the field, with a load equal to the pay load capacity written into the purchase contract. This demonstration shall be made with only one design propeller; that is, the manufacturer may not use a high speed propeller for speed tests and a climbing propeller for climbing and ceiling tests.

Manufacturers believing themselves capable of designing and building aircraft which will perform more advantageously than this specification provides for may submit such designs, plans, and their claims for the designs. These will be carefully considered in competition with all other bids.

Relative Efficiency of Direct and Geared Drive Propellers

N.A.C.A. Report No. 178

This report, by Walter S. Diehl, is an extension of the National Advisory Committee for Aeronautics Technical Report No. 168 and has been prepared for the National Advisory Committee for Aeronautics to show the relative values of various direct and geared drives.

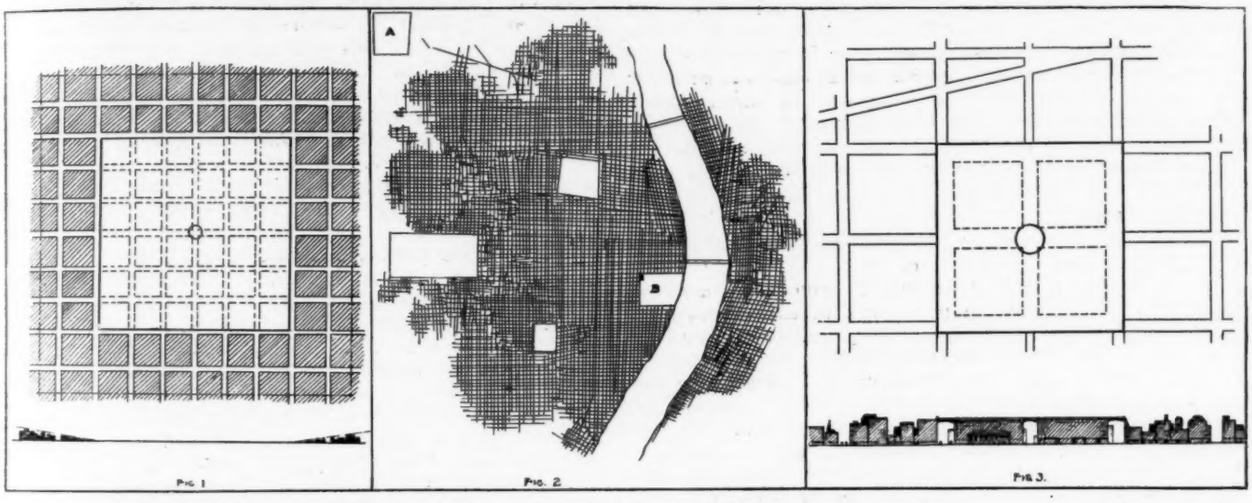
It has been assumed that the speed V and the crankshaft revolutions are held constant at each value of $\left(\frac{V}{ND}\right)_2$ corresponding to the maximum efficiency for a two-bladed, direct-drive propeller, so that the corresponding $\left(\frac{V}{ND}\right)$ and maximum efficiency for any other propeller arrangement depends only on N and D, which are easily calculated. The net efficiencies are obtained by allowing 98 per cent for the gears and 95 per cent for the efficiency of a four-bladed propeller relative to a two-bladed propeller.

The net efficiencies so found are given in terms of the efficiency for the two-bladed, direct-drive case, and plotted against $\left(\frac{V}{ND}\right)_2$ so that having given the $\left(\frac{V}{ND}\right)$ corresponding to maximum efficiency for a two-bladed, direct-drive propeller, the relative gain or loss due to any ordinary arrangement may be readily estimated. The conclusion is reached that when $\left(\frac{V}{ND}\right)_2$ is greater than 0.70, gearing is not advisable.

The Future of the Air Terminal

By DWIGHT HUNTINGTON

Of the many important problems vexing city plan commissions today, it may safely be assumed that those relative to transportation occupy the foremost positions. Practically every large city in the country, for example, is at present wrestling with the difficulties incident to traffic congestion in downtown business districts and many are floating bond issues with which to defray the costs of condemning buildings, widening streets and so on. This subject in particular has brought out encouraging signs of further progress in municipal expansions along sound lines. In every large community forward looking men are seriously at work, intent upon recognizing future needs as they arise, rather than waiting to be driven by necessity, as so many of their predecessors had done, with its resulting confusion and expense.



Diagrams showing: (1)Necessary limitation in size of a city air terminal; (2) Present type of airport on the outskirts of a city; (3) Proposed overhead air terminal, covering four city blocks

Importance of Air Terminals

That the aeronautic industry will reap large benefits from this progressive tendency, through the proper locating, planning and financing of air terminals, adequate to the needs of the several cities, may reasonably be expected, since this problem will continue to grow in importance during the next few years until it occupies first place among those pertaining to transportation facilities. And although a strong forward movement by every important municipality toward air terminal provision would be of incalculable benefit to the industry, little has so far been accomplished except for the temporary provisions made for local aviation meets, and, in a few instances, the Air Mail. Nor can any municipality be censured for seeming tardiness in the matter so long as there exists no real commercial air traffic, and aeronautical engineers and promoters remain unable to agree concerning the best designs of carriers and terminals.

Many prominent business men have expressed as their opinions that landing fields should be established at 25 mi. intervals along proposed "improved" airways: one engineer of the writer's acquaintance has taken the cost of air terminal development into account in his prospectus: city authorities, occupied with more pressing matters, are quite content to overlook the flying field temporarily at least and enforce restrictions on over city flying. Yet, it is quite possible that much thought along these and similar lines is the result of temporary planning. Looking any appreciable distance ahead compels one to challenge many of these pet theories and may easily give rise to a beneficial general discussion of this all important subject.

Since commercial air transportation in the United States will find its greatest opportunity in competition with railroads in the carrying of passengers, mails and express over considerable distances, planes must be capable of operating both night and day, in all kinds of weather, without causing even a slight feeling of uneasiness within the passengers concerning the possibilities incident to forced landings. In the final analysis it will be found that any honest air line promotion will be reliable in direct proportion as the flying stock it employs is reliable. All the hopes that are wrapped up in aircraft as a means of advancing civilization are covered in that one policy —reliability—for that insures safety, service and economy.

When considered in this light is there good reason to agitate for fields every 25 mi. across a country so large as North America? What will the maximum size of these fields be in order to accommodate the large transports that are destined to come? The answer can be found only in the planning of the carriers first and the terminals afterward. A recent editorial in AVIATION is pertinent to the question: "The drawbacks of possible engine failure, the greatest single factor in the present comparative uncertainty of commercial air transport, could, it is generally conceded, be almost entirely overcome by multi-unit powerplants." Safety may even demand the development of some sort of dual powerplant for small planes. But until the advent of the multi-motored commercial carriers, capable of reaching their destinations always, air traffic in the United States will remain much as it is at present. And when the inevitable change is accomplished there will be no need for air terminals except in accordance with the specific requirements of the communities they are to serve.

Again, looking upon the large airport as a haven for leviathans of the air, where is the logic behind the idea of each line making terminal provision to suit its particular requirements, even granting that were financially possible? The modern tendency toward unifying terminal facilities, finding its farthest expression in Union Railroad Depots, is the result of gradual development and may well be taken into account when air terminals are planned.

Influence of Carriers on Terminal Design

The logical basis for development of the air terminal proper lies in a careful analysis and estimate of the probable developments and improvements in all types of carriers. One fact that is quite evident at this time is that small individually owned planes will never become popular with the general public until large numbers of people have become accustomed to air travel behind experienced pilots, in big, airworthy

ships. Mechanical endurance, applied to powerplant reliability in particular, is and for many years will be, the chief concern of all parties in any way related to the science, and this includes practically 100 per cent of the people, since an unreliable ship is a constant source of danger to the people below its path, as well as to passengers, crew and operators.

The hangar problem presents another instance where a little foresight will clear the fog in regard to an important detail. We know that planes must operate in all kinds of weather to be truly serviceable. Does it not seem more logical, then, for constructors to bend their efforts toward the production of all-weather craft, rather than following present methods of construction? Who at this time, can foretell where the size limit for aircraft will be when reached? And will another large area adjoining the terminal be required for colossal sheds to house very large ships? Time must answer in the negative. There can be no more reason for housing the large planes than exists today for housing steamships or railway cars—less reason when the required area is taken into account --if in fact it could be provided for within financial limits. Pullman cars are in operation well over 50 per cent of the time and it is reasonable to suppose that aircraft will be under way, on the average, at least 75 per cent of the time, assuming night flying, of course. The aircraft hangar has served its purpose admirably, and no doubt will continue to find even greater usefulness in connection with small ships; but there exists little logic in its contemplated use in connection with large transports.

No matter where an air terminal may be located—with reservations governing altitude of course—its size or rather effective area is primarily dependent upon the number of ships it is to accommodate or amount of traffic, and more particularly, the size of these ships. Assumptions have been drawn from time to time regarding possible limitations as to size, and have as often been revised until at present the best bet lies quite obviously in the development of a system permitting gradual enlargement to keep pace with the demands of both traffic and tonnage. Therein exists the prestige of the present field type terminal, linked as it is with comparatively small finances in the absence of real commercial air traffic compensation. It may here be observed that, other things being equal, increased powerplant reliability will permit of heavier wing loadings and faster landing speeds through the elimination of forced landings.

Evolution of the Field Type Terminal

Once air travel has become common-place, property adjoining the terminals will be built up in boom style—hotels, industrial houses, factories, places of amusement and residences will appear on all sides to cater to the travellers as well as to the operating staffs. Property values will mount in proportion to the importance of the airport. Yet even here a limit can be foreseen, as all structures adjoining the field will be strictly limited in height in accordance with a ratio that at present stands at seven to one. Therefore it is easy to foresee that many buildings must be of temporary construction due to the ever present possibility of terminal enlargement and all building over an area considerably larger than the terminal itself will be limited as to height and, consequently, as to value. Fig. 1 will illustrate this point.

Another development that must follow the upbuilding of the surrounding territory will be the tunneling under the field to make streets for auto, street car and railroad facilities, possibly, in order to link directly as possible all sections adjoining the field on the several sides. And will development stop there? Is it not quite within reason to suppose that some enterprising merchant will speedily lead the way in the provision of a store along one of the underground streets, to be followed by a host of others until the terminal becomes a veritable commercial catacomb? About that time, perhaps, aeronautical engineers might decide by a very small majority, if any, that a hard surface, unaffected by moisture or nearly so, was advisable from the standpoint of safety in alighting and then would follow another improvement, welcomed by all concerned.

We have been considering the probable gradual development of the present type of field terminal, the one in universal use today. Its predominant advantages lie in the comparatively small financial outlay required in the absence of revenue and industrial stimulation and expansion; in safety through the discouraging of low, over-city flying in planes of questionable reliability and in keeping outside the city limits possible traffic that might add to present congestion of business districts.

Location of Terminal with Respect to Community

Of great, even if secondary importance, is the relation of the field or terminal location, to the operating lines. It is easy to foresee that terminal location is a subject that air line promotors must guard jealously and wisely if they expect to avoid serious handicaps and be placed at a great disadvantage to other forms of transportation, particularly the railroads. Let us take an example.

St. Louis and Chicago are separated by an airline distance of approximately 275 mi. The railroad time between the downtown sections of these two cities is about 80 hr. An airline operating ships at 100 mi./hr. would cover the distance inside of 3 hr. and, if this were all, could easily compete with the railroads for the fast traffic over the distance. But such cannot be the case as long as terminals are located an hour or more from the hearts of these cities. In the above example it is easily seen that the time wasted in reaching and leaving the flying fields from and to the cities is practically as great as the air time between the two cities. Thus the trip would become one of nearly 6 hr. instead of 3, with the added inconvenience of two changes from different transit systems. Few men would patronize the airline for a saving of 2 hr., at considerably greater expense and inconvenience, except occasionally for the experience. Business men would stick to the sleeping car, and air lines would be handicapped to an appreciable extent. Were the terminals located in close proximity to the railroad depots in each city, a much fairer basis of competition would result.

On shorter flights it is evident that for many years air transport cannot hope to compete with fast trains unless the terminals are located, when built, near the centers of the several communities. After all, it is much easier to imagine cities providing air terminals right where they are most needed than that new cities are to spring up around the present generally out-of-the-way fields. At any rate aviation people should take this matter to heart and agitate for fair play with respect to terminal location, whenever the question of air terminal provision seriously takes hold in a community.

Looked at in this light, the present popular belief that any old cow pasture on the outskirts of a town, or even a nicely graded field an hour or so from the city limits, represents the last word in air terminal development, is seen to be not well founded.

Ideal Location of an Airport

The ideal location for any terminal provided to serve a community is, and probably always will be, right in the heart of that community. That is the one location that will always satisfy the increasing demand for time saving means and convenience.

To consider even for a moment the provision of a field type terminal within city limits is a grievous waste of time. But is there not a second choice of possibilities? Emphatically—yes! Small planes have on numerous occasions been landed successfully on large roofs of buildings and aircraft carriers have proven their usefulness at sea during several years of experimentation and use. Therein seems to lie the inevitable solution to the air terminal problem, the provision of a roof type terminal, not through the erection of platforms above present buildings, which would only be a makeshift at best, but rather in the careful planning of a group of buildings, the roofs of which would be connected, thus providing an ideal terminal right where it is needed for greatest benefit to the community, to travellers and to air lines.

Right here we may pause to listen to objections from city planners regarding the folly of adding to the congestion of business districts through the erection of a large terminal that will soon bring into the vicinity increased traffic, providing present plans remain materially unchanged. Yet what do objections of this sort amount to in the final analysis? If

the right location of the terminal is as it certainly appears to be—in or near the center of the community—then objections of this nature are merely excuses for sidestepping an issue of tremendous importance. Careful planning will not only surmount the difficulties presented but may actually be made a basis for alleviating present confusion.

Fig. 2 gives an approximate location of the present field type terminal A, and an advantageous location for a roof type terminal B, the nucleus of which would be the Union Depot, shown in black. Fig. 3 indicates the facility with which a small terminal may be provided for, in the construction of buildings over four square blocks to a definite plan. Wider streets are an advantage, particularly within the terminal area, and surrounding property is not affected adversely as in the case of the field terminal.

The Municipal Terminal Idea

The provision of a single terminal comprising facilities for practically all land and air systems of transportation serving a community, and, in some cases water forms as well, will afford the same advantages to the public as the Union Railroad Depot now provides, but on a much greater scale. Means for transferring from one form or system to another may be contained within the terminal-elevators and moving platforms for examples—and the headquarters for all forms may be placed under one roof—in one building.

The terminal building proper can follow the general scheme of present large railroad depots. Let us assume that this structure occupied a city block. Let us also take for granted that the municipality offered inducements to businesses of all sorts to build on three adjoining blocks in accordance with a carefully drawn plan. One block might hold a theater and hotel, another stores and offices and the fourth garages for cars on the lower floors and for small planes on the upper floors, with suitable lifts to the roof or runway. By bridging the streets intervening as well as those surrounding the four blocks an ideal terminal for small planes would result. For very small towns this size would no doubt suffice for many years—until it assumed importance enough to attract larger air carriers. For the large communities however, this design would be merely a beginning—a nucleus for further development—an embryo terminal.

To enlarge a terminal of this type would necessitate the construction of modern buildings on adjoining property—which will be constructed anyway—but in conformance with a plan benefiting the whole community rather than to the ideas and tastes of a few. Thus the terminal could be expanded on almost all sides as necessity demanded and adjoining property would not decrease in value, but on the other hand might increase materially. And the wide streets, feeding various nearby sections simultaneously, would not augument traffic congestion if in fact it did not relieve matters.

The benefits accruing to the traveling public through the enormous gross saving in time—one to three hours at each terminal saved air travellers—(a potential source of revenue), to shippers and to the lines, have been mentioned before. Flying clubs and aircraft factories, following the precedent established by several automobile concerns which use their factory roofs as testing tracks, may reasonably be expected to take advantage of the opportunities afforded by such a terminal and locate within the area.

Interesting Detail Problems

The best height for the terminal building and all buildings within the terminal area will depend upon the heights of surrounding buildings, limitations placed on future buildings, etc. It will be observed here that cities which have already restricted the heights of buildings are fortunate in this respect. The removal of all high stacks, masts, towers and aerials that are dangerous to aircraft within a large radius of the terminal will follow as a matter of course. The placing of beacons some distance from the terminal on all sides to guide pilots of arriving and departing ships will be a means of preventing accidents at the most critical stages of the air journeys.

While the main engineering problem will lie in the proper design of the whole structure or system of structures, to withstand the strains imposed—by the hard landings of very large ships, the admission of daylight to the streets and buildings within the area, the provision of stops or bumpers around the edges of the runway, the removal of snowfall and water drainage, fuel, oil and water pipings, hatchways for ready access to ships and moving platforms for cargoes as well as passengers connecting these hatchways—all present comparatively minor difficulties which proper study can and will overcome. It will be observed, however, that here is a virgin field open to architects, engineers and contractors and much prestige may one day be attached to that concern which develops the first municipal terminal and the first practical airport. In the covering of the terminal streets we find example in the imaginings of Edward Bellamy—with the added advantages of permanency, transparency and double utility.

From the standpoint of the community it is plain to be seen that the earlier a plan is decided upon and construction commenced—the longer the time that may be allotted for careful design and economical building. At most, the cost of such a terminal will run over a number of years and, in the end, will be found quite within reason, when cost is considered in proportion to the many benefits to be derived from its use.

Finally, it will mark another long step forward in the history of transportation, enabling commercial aviation to compete with other forms on a fairer basis through the elimination of one of its greatest present handicaps—inconvenience and loss of time incident to using planes for inter-city trips from outlying fields. By suitably advancing a plan of this nature, increased prestige may be brought to the science through the benefits derived by all travellers and by all communities.

Aviation in Congress

68th Congress—First Session

Feb. 9 House

Mr. Nelson: Resolution (H. Res. 178) authorizing the Committee on Patents to inquire into the subjects of aircraft patents incident to the operations of the Army Air Service, Naval Aeronautics, the Air Mail Service, or any agency, branch, or subsidiary of either.

Referred to the Committee on Rules.

Feb. 12 House

Discussion of the Treasury and Post Office Appropriation Bill. The amendment to use $1,500,000 for the operation and maintenance of the Air Mail Service, went out on a point of order due to the fact that there is no legislation that authorizes this activity.

Feb. 13. House

Mr. LaGuardia. A bill (H.R. 6942) establishing authority for transmission and carrying of mail by air.

Referred to the Committee on Post Offices and Post Roads.

Feb. 15. House

Mr. Oldfield: A bill (H.R. 7025) providing for the purchase of certain inventions, designs, and methods of aircraft, aircraft parts, and aviation technique of Edwin Fairfax Naulty and Leslie Fairfax Naulty, of New York.

Referred to the Committee on Appropriations.

Also, a bill (H.R. 7026) providing for the purchase of certain inventions, designs, methods of aircraft, aircraft parts and aviation technique of Edwin Fairfax Naulty and Leslie Fairfax Naulty, of New York.

Referred to the Committee on Appropriations.

Feb. 18. Senate. Naval Air Station, Pensacola, Fla.

Mr. Fletcher submitted an amendment intended to be proposed by him to the bill (H.R. 4097) to authorize the disposition of lands no longer needed and the acquisition of other lands required for naval purposes, which was referred to the Committee on Naval Affairs and ordered printed.

Feb. 18. House

Mr. Kelly: A bill (H.R. 7064) to encourage commercial aviation and to authorize the Postmaster General to contract for air mail service.

Feb. 19.

Mr. Fletcher submitted two amendments intended to be proposed by him to the bill (H.R. 5721) to authorize the Secretary of the Navy to proceed with the construction of certain public works, which were referred to the Committee on Naval Affairs and ordered printed.

Feb. 21. Senate. Day and Night Airplane Mail Service.

Mr. Phipps submitted an amendment proposing to appropriate $1,500,000 for an additional amount for the installation, equipment, and operation of the airplane mail service by night flying, and to enable the department to make additional charges for both night and day service on first-class mail matter in accordance with existing law, intended to be proposed by him to House bill 6349, the Treasury and Post Office Departments Appropriation bill, which was referred to the Committee on Appropriations and ordered to be printed.

Feb. 23. House.

Mr. Nelson, of Wisconsin, again talks on conditions in the Air Service and the resolution (see H. Res. 178) that he proposed on Feb. 9.

Feb. 25. House.

Mr. Nelson: A resolution (H. Res. 192) for the appointment of special committee composed of seven members of the House appointed by the Speaker to inquire into the operations of the U. S. Army Air Service, Naval Bureau of Aeronautics, the U. S. Mail Air Service, and for other purposes.

Referred to the Committee on Rules.

Feb. 26.

On Feb. 9, Mr. Nelson proposed a resolution (see H. Res. 178)authorizing the Committee on Patents to inquire into the subject of patents incident to the operations of the U. S. Army Air Service, Naval Bureau of Aeronautics, the U. S. Mail Air Service, etc. This was referred to the Committee on Rules. After consideration it was reported back as above. As is the rule when a resolution is reintroduced it is in the name of the originator. However, on Feb. 26, Mr. Nelson objected to this resolution being reintroduced in his name, and asked that it be stricken from the Record. Mr. Snell, Chairman of the Committee on Rules, volunteered to have it reintroduced in his name.

Feb. 28

This resolution reported back and referred to the House Calendar.

March 1. House.

Mr. Nelson: A resolution (H. Res. 202) authorizing the Committee on Patents to inquire into the operations of the U. S. Army Air Service, Naval Bureau of Aeronautics, U. S. Mail Air Service or any agency, branch or subsidiary of either.

Referred to the Committee on Rules.

—*Aeronautical Chamber of Commerce.*

French Prizes to Recapture Records

The French Government has offered a prize of 200,000 francs for the purpose of bringing back to France the world's airplane record for speed, now held by Lieut. A. J. Williams, U.S.N., with his mark of 266.59 mi./hr., achieved at Mitchel Field, New York, Nov. 4, 1923. The prize is divided, 140,000 francs to the builder of the airplane and 60,000 to the manufacturer of the motor.

Several other prizes are offered—150,000 francs for the seaplane speed record, 100,000 francs for a new distance flight, to which 50,000 francs will be added if the duration record is broken simultaneously, and 25,000 francs for the altitude record. All the prizes are to be divided between the builder of the plane and the manufacturer of the motor in the same ratio as for the airplane speed prize, 70 per cent and 30 per cent respectively. The offer will stand until Jan. 1, 1925.

The offer of the prizes was the first official act of Laurent-Eynac upon assuming his duties as High Commissioner of Aviation. M. Eynac was formerly Under-Secretary of State for Aviation, the head of a large staff at a high salary. The Under-Secretariat was eliminated by the new Poincaré Government for reasons of economy. M. Eynac is now not even a "dollar-a-year-man," his present salary being nothing.

Storage Batteries for Airplane Use

Storage batteries to give the best service need to be designed to meet the particular conditions under which they will be used. An extreme case is afforded by airplane service in which it is essential to obtain the largest possible current output with a minimum weight, and the total life of the battery is of relatively little importance as compared with high efficiency. In order to get satisfactory batteries for this service considerable development work has therefore been necessary.

At the request of the Bureau of Aeronautics of the Navy Department the Bureau of Standards has been making tests on airplane batteries produced by a number of companies. The information gained by these tests has afforded a basis for the revision of the Navy specifications for such batteries. (Bureau of Standards Report No. 21)

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

Tentative Rules for the Rickenbacker Trophy

Captain Rickenbacker has laid out a set of rules for his Trophy Competition to be held this fall. They will be published soon. They are designed to "afford a comparison of the light commercial aircraft against one produced for speed alone."

Mr. Rickenbacker writes in this connection as follows:

"The rules covering my trophy should allot to each contestant one gallon of gasoline for each 200 lb. of pay load. This permits the one going the farthest on this apportionment of gasoline in terms of pay load involved to be declared winner as the best commercial load carrier available. It would give a figure of merit from a standpoint of pound miles per gallon.

"For the average machine, this would give us a race of about 60 mi. assuming in the neighborhood of 1 hr. elapsed time for the winner. I would bar none from this trophy. It would be free for all under the 80 cu. in. displacement.

"The pay load is defined as that load which is made up of the pilot and ballast, both of which should be weighed in advance of the contest. All entries should have factors of safety as follows: High incidence, 5; low incidence, 4; reserve flight, 3.

"All entries after disassembling should be able to pass through an 8 x 8 ft. opening, and should be reassembled in 45 min. by two men.

"The plane, designed to carry 200 lb. pay load, will travel approximately 60 mi. on 1 gal. of gasoline. Conservatively speaking, it will be a machine that will necessarily have to be well designed and will have all those characteristics such as climb, speed, take-off and landing in restricted areas which will be inherent in the design in order to fulfill the basic requirement that is laid down on the basis of pounds of pay load per gallon of gasoline.

"I believe that it will meet with honest approval from all sides after closer scrutiny of the obvious reasons and advantages to be gained in actually arriving at the reason to participate, and to be commercial in every sense, therefore fundamental in requirement. Reams have been written about desirable characteristics of so-called commercial airplanes, but I believe that a "200 lb.-to-one-gallon-of-fuel" basis simply put, would eliminate any controversy upon the outcome of such a contest, and would start people thinking along more reasonable channels as has been done in the past with other means of transportation on the ton-mile basis."

Finding the Right Engine

For the designer of the light plane, the last outstanding difficulty is the acquisition of an appropriate engine. Many designers have concluded that the best all-round light plane engine that may be available for machines that are to be flown this summer is the horizontally opposed two cylinder engine just built by the Steel Products Engineering Co. of Springfield, Ohio, from a design by Harold E. Morehouse of McCook Field. It was built for the Air Service, as a blower engine for one of the Army blimps. In its design is embodied all the air-cooled gas engine data available to the Air Service for the past five years. The two opposed cylinder arrangement with two crank throws gives the best balance and the smoothest running. In this it resembles the 37 cu. in. Harley-Davidson horizontal engine, which was, in fact, the basis for this design. The only thing that is left from the original engine is the crank shaft and the connecting rods. The valves have been placed in the head, and arranged with air passages between them for efficient cooling. In the tests conducted recently at McCook Field, no difficulty came up with cooling, even at peak loads.

The intake manifold is especially worthy of mention. The carburetor is bolted on the base of the oil sump; the intake passes up through the sump and out the sides of the sump to the ends of the cylinders. In this way the oil is effectively cooled and the air is warmed at the point of vaporization. It is then chilled before entering the intake to improve its volumetric efficiency.

At the official test which was conducted at McCook Field, this 42 cu. in. engine developed 15 hp. at 2400 r.p.m. Later it was run up to 3600 r.p.m. and at that speed it delivered 25 hp. With its weight at 50 lb. this is undoubtedly the finest light plane engine at present in this country, if not in the world. On account of the tightly closed crank case and the roller bearings, the oil consumption is extremely low. The engine can drive the propeller directly or by means of epicyclic gears. Its gasoline consumption is 5.2 lb./hp./hr.

Here would be the ideal engine, but unfortunately, it is not now available. Only one was built, and that at a cost of some $5,000. Now that the patterns and dies are made, however, the engine could be produced at a reasonable price if there were a sufficient number of orders for it. There is some report that the S.P.E. Company will venture a production order of five engines, and, if these sell readily, fifty can be built, and sold, it is said, for $250 apiece. One ventures the opinion that the first five engines will be sold as soon as they are announced, if one is to judge the demand from the inquiries that have come in about available engines. We hope they will be sold at the same price as the proposed production engines, if only to serve to impress upon our public that light planes are not an expensive luxury. Like reckless stunting, we hope that exorbitant prices also can be cut out by the light plane.

Motorcycle Engines

There is, of course, the possibility of importing light plane engines from England. The Douglas engine, which was so successful in the Parnall Pixie and now in the DH53 and in the ANEC, can be purchased in England for $250. Packing, shipping and duty would bring it to almost $400 in this country. Along with other English engines, it can be obtained in about six weeks. This engine has 46 cu. in. displacement and a peak load at 24 hp. It is used with greater success in driving the propeller directly.

The engines of American motorcycles have been used to some extent in light planes. The Henderson and Ace four cylinder motorcycle engines weigh, without the transmission and flywheel, slightly over 100 lb. They both have the advantage of the maximum displacement allowable in the Dayton Meet, 80 cu. in. But the makers are not anxious to have the motor employed to drive an airplane. Heavy pulling at peak speeds quickly bring to the surface all the weakness of a motor. The big Indian has been used in two light planes built in this country. The Harley-Davidson 74 cu. in. engine has also been used successfully. The 64 cu. in. engine is fitted with light pistons and is especially equipped for racing. For balance and design the 37 cu. in. horizontally opposed Harley-Davidson is perhaps the best, but on account of the low power and the difficulties of eliminating the transmission it is avoided by many designers.

Experiments have been made with an engine of this type for some months. The transmission shafts were removed, and the part of the crank case housing the transmission was sawed off. This radical operation removed about 15 or 20 lb. of useless weight. The holes were covered with sheet aluminum and were welded in place so that with proper gaskets the crank case was leak-proof and still removable. The pistons were rebored to 0.060 in. oversize, increasing the displacement approximately 3 cu. in. High compression light pistons were fitted with bronze bushings at the ends of the wire pins. The intake and exhaust manifold casting, weighing 15 lb., was replaced by thin steel tubes and finally a propeller shaft was designed to drive from the idler gear with a ratio of 24 : 58 with the crank shaft. The propeller shaft extends out through the oil pump with a thrust bearing on the end of the central stud. The weight was 65 lb. This engine was recently taken to the Massachusetts Institute of Technology for tests. It was hoped that from 10 to 12 hp. could be obtained.

On any such rebuilt motor, however, the most satisfactory results cannot be obtained. A mean effective pressure of 125 lb., such as developed with the Morehouse engine, is out of question. It is, however, very probable that the amateur builder will at first of necessity make use of some such arrangement, and it is well that he should do so.

New Designs

From such needs arise new designs. Several engines of 80 cu. in. designed to meet the rules of the two light plane events at the Dayton races are announced. These designs, however, must be built and developed through a series of severe tests before they will be fit to be placed on the market for flying. Unless they have phenomenal results, they will hardly be available for use this summer.

Mr. Roche, the airplane designer at McCook Field, is designing a light plane as his own entry in the light plane races. It is reported to be a monoplane of standard form but with unique landing gear. The engine has not yet been decided upon.

Power Available for Light Planes

The margin between power available and power required is so narrow in light plane design that the effect of refinement is augmented. The limiting factor, when one has low power, is climb. One's machine must be a good airplane first of all. High speed comes second or third in requirements, and landing speed will quite take care of itself if good climb is secured. No airplane having low power is acceptable unless it has sufficient climb to get it out of small fields.

Suppose an engine develops 8 hp. It is doubtful if in climbing one would get more than 65 per cent propeller efficiency. That leaves but 5.2 hp. available. In obtaining a value for power required, induced and profile drag of the wing, as well as parasite drag, must be considered. The two former can be obtained with a fair degree of accuracy from available wing data. But the parasite resistance is ever a bugbear. The resistance of the fuselage can be estimated on the basis of a percentage of the resistance of an equivalent flat plate projected area. This percentage depends upon the refinement of the fuselage design. In a very poor design it may be twice as great as in a clean job. This difference is shown most obviously in the difference between the JN4H and the VE7. In light planes, however, it is strikingly evident. The power required for normal flight at climbing speed may be 2.5 hp. or it may be 4.5 hp., depending entirely upon the way in which the fuselage is "cleaned up." This will leave either 2.7 hp. or 0.7 hp. for climb. The first will be sufficient if the machine is very light, to give a climb of 200 ft./min. The second would be quite impossible as a serviceable light plane.

In heavy designs such a difference might pass unnoticed. We have become accustomed to high power, and in our demands for it we grow careless of ways for the saving of horsepower here and there, and of other refinements that might make the airplane as clean as a bird.

AIRPORTS AND AIRWAYS

Long Island News

The coming of spring witnesses a considerable amount of activity at the Long Island flying fields. Pilots who "quit flying" in the fall, suddenly discover that they meant to qualify that statement with the foot note "until spring," and paying passengers are driving up to the flying fields to get a whiff of the spring air several hundred feet aloft.

* * *

The Curtiss Flying School at Garden City is running full blast, with fourteen students being instructed by Chief Pilot Casey Jones and Pilot Jim Ray, who are also kept busy with photographic and other jobs.

The Balsams Air Service, which last summer was running a daily newspaper service from Garden City to Dixville Notch, N. H., for the benefit of hotel guests at the latter place, will resume operations in June. Curtiss Orioles will be used, as last year.

Three Oriole fuselages recently returned to the field after producing some realistic typhons, monsoons and other storms for a motion picture.

* * *

A new Air Mail plane, consisting of a standard DH Mail fuselage and fitted with a set of experimental wings produced by the Loening Aeronautical Engineering Corp. is awaiting acceptance tests. These wings measure one foot more in span than the regular Air Mail wings, and have two N type interplane struts of streamlined steel tubing on each side of the fuselage. The construction is of the conventional fabric covered wooden frame type.

Delivery of the second Aeromarine Mail Plane from Keyport, N. J., is imminent. This ship will have the fuel tanks inside the fuselage, and a nose radiator, instead of having these accessories mounted on the top wing as in the first ship.

A Fokker Mail Plane of the type recently described in AVIATION is also housed in the Air Mail hangar.

* * *

The Skywriting Corporation are ready to resume activities the first fine day. The Skywriting SE5A's have all been thoroughly overhauled during the winter and are in the pink of condition for their work. A lot of experimental skywriting has been done with a new orange colored smoke, and the trials have been highly satisfactory, as this color shows up wonderfully well on the sky, clouds or no clouds. Sky gazers have quite a treat in store.

* * *

The Fairchild fleet is busy with aerial photographic work and is awaiting delivery of the two Huff Daland planes recently ordered. These ships will be adaptations of the Army TW training plane and of the Navy HN training plane, as the fuselage of the Petrel is too wide for photographic purposes. The pilot will be seated well forward, and the photographer well aft, of the wings, where both will have a maximum range of vision. The seaplane will be used by the Canadian branch of the company. The equipment of these planes was specially developed in conference between Capt. Richard Depew, director of flying of the Fairchild company, and the Huff Daland engineers, and will constitute the latest word in this line. Of this more will be said at a later date.

* * *

The Curtiss plant at Garden City has about finished its contract for eight Navy CS1 "three purpose" planes fitted with the 550 hp. Wright T2 engine, and is actively pushing the construction of twenty-five Curtiss Pursuit planes, with the 375 hp. D12 engine, as well as two twin-Liberty Night Bombers for the Army Air Service. All these ships have welded steel fuselages braced with threaded steel tierods, and incorporate some interesting and novel gadgets, which it may be possible to describe at a later date.

* * *

A four-seater sport flying boat with metal monoplane wings is under construction not far from Mitchel Field to the order of Harold S. Vanderbilt. This ship will be equipped with a 450 hp. Napier Lion engine, which will drive a pusher propeller. Messrs. Booth and Thurston, who will be remembered as the constructors of the Bee Line racers which the Navy flew in the 1922 Pulitzer race, and who also designed the Navy Wright racers for last year's Pulitzer race, are in charge of the aerodynamical work.

This ship will embody some very novel ideas, and its trials are awaited with considerable interest. Mr. Vanderbilt is an enthusiastic airman, and American aviation owes him a debt of gratitude for the highly experimental work he is encouraging by the construction of his new air yacht. The machine will probably be ready by June.

* * *

The Sikorsky twin-engined passenger plane, which the Russian engineer is building at Roosevelt Field, is nearing completion, and will make its trial flight in a month or six weeks. This ship has an interesting tail trimming system, whereby the whole tail end of the fuselage is pivoted which changes the incidence of the stabilizer. The machine is largely built of duralumin channel members, only the heavily stressed members, such as fuselage longerons being steel tubes. The covering of wings and fuselage is of fabric.

* * *

The use of parachutes having been made compulsory for Air Mail pilots, all the fliers are now being put through the mill of "stepping over board." James Whalen, recently appointed parachute superintendent for the Eastern Division of the Air Mail, made the first jump on April 9, from an altitude of 2000 ft. C. Eugene Johnson, Air Mail pilot for the Eastern Division, also made a jump that day from 1500 ft. The parachutes employed are of the type used in the Army and Navy Air Services.

* * *

The plant of the L.W.F. Engineering Co. at College Point, L. I., was closed on April 8. The company has been operated under receivership since 1920.

Prof. Warner Hurt in Fall

As a result of a fall of 20 ft. from a tree, Prof. E. P. Warner, head of the aeronautical department of the M.I.T. and Associate Editor of AVIATION, is now in the Massachusetts General Hospital suffering from a broken leg and a severe fracture of the ankle. It is probable that he will not be able to resume his official duties for at least a month.

Professor Warner was visiting friends in Marshfield, Mass., and during the electrical storm Sunday morning lightning struck a tree near the house in which he was staying. The tree took fire, burning the insulation from two electric wires that passed through its branches, and fearing that the house might also begin to burn, he climbed into the tree and attempted to extinguish the flames with a bucket of water.

While pouring the water on the burning wood, electrical contact was established from the non-insulated wires and he received a shock which caused him to lose his footing and fall to the ground. The two bones in his left leg were broken at the ankle and two or three bones of his foot were dislocated. He was removed to the hospital immediately.

Stow Aviation Field

Stow Aviation Field is located 6 mi. northeast of Akron, Ohio, about 1½ mi. east of Silver Lake. The hangar, 50 x 250 ft., is located at the northeast corner of the field, and opens toward the west. It is visible for several miles from the air. The field is also marked by a sign on the roof of the barn, nearby, with an arrow pointing toward Akron, the words AKRON, 6 mi. in large white letters appearing upon one side, and the words STOW FIELD on the other. The field at present has a good sod runway running north and south, at the east side of the field. The remainder of the field will be available for use during May or June, making a fine large four-way field. A wind-vane on the south end of the hangar shows the wind-direction.

The field houses a flying school where students are given instruction from competent pilots at very reasonable rates, and pay as they learn, by the hour. The ship used for instruction is either a Waco with high-lift wings, or a Jenny. The Waco has a very slow landing speed, will not spin, and is very easy to fly, having good control at slow flying speed. It is an ideal ship for those wanting to "play safe."

Stow Field is located on the main electric line between Akron, Kent and Ravenna, Stop 53. It is also on the main auto highway between Akron and Youngstown. By airline it is midway between Dayton and Buffalo, affording an excellent stopping place for fliers between these two points. There are many emergency fields close by in every direction, and the geographical location makes it easy to locate the field. An attendant is at the field both day and night, having sleeping quarters at the hangar. A gasoline pump, with hose long enough for filling planes which taxi up, makes it very convenient to obtain high-test aviation gasoline. Motor oil and a small supply of parts are available, such as wheels, propellers, etc. for emergency use. Planes are available for passenger carrying and commercial work.

Fred F. Smith is the owner of the field. His mail address is Rt. 1, Cuyahoga Falls, Ohio.

The Gypsy Moth in New England

The Bureau of Entomology, Department of Agriculture, has asked further cooperation of the A.S. Engineering Division in their efforts to check the spread of the Gypsy Moth in the New England States.

A tentative design of apparatus has been made for attachment to TC airships, consisting of blower agitator and hopper for scattering the insecticide. This equipment demands hopper and blower of greater capacity than that used on the U.S.M.B. airship in experiments conducted last year. This design has been sent to the Department of Agriculture for comment and, if satisfactory, will be fully developed. Estimate of the cost is being made in the meantime. It is proposed to utilize the new 2-cylinder gasoline engine designed for use with the airship blower unit.

Ex-Aviators in Recital

J. Gwilym Anywl, tenor, and Frank E. Forbes, baritone, gave jointly a first concert well out of the ordinary run of débuts recently in the Astor Gallery of the Waldorf-Astoria, New York. They are former aviators, both wounded in the war and rehabilitated by the United States Veterans' Bureau. They sang to an interested audience old English and Italian songs and airs from oratorio and opera.

Mr. Anywl is tenor soloist at Christ Church, Greenwich, as well as one of the choir singing in New York at the Central Synagogue.

Mr. Forbes, who is a baritone at Tompkins Avenue Congregational Church, Brooklyn, sings also at Temple Israel, Jamaica and Temple Israel, Far Rockaway.

General Manager of Pulitzer Races Selected

Charles H. Paul, Chief Engineer of the Miami Conservancy District, has been selected as General Manager in charge of the 1924 Air Races, which will be held on Oct. 2, 3 and 4 at Wilbur Wright Field, Fairfield. Mr. Paul was the unanimous choice of the Executive Committee of the Dayton Chapter of the National Aeronautic Association. He has a long and enviable record as an engineer and an organizer who gets things done.

Detroit News

By Leo C. Graff

Herbert V. Thaden and S. A. Rasmussen recently made a trial flight with the balloon Detroit, which has been entered in the National Elimination Balloon races that will start from San Antonio, Tex., April 23. R. H. Upson accompanied them as coach on this flight and states that the wind conditions were unusual for this time of the year, being of light velocity and much varied in direction. The party was in the air a total of 4½ hr., landing in a field less than 25 mi. from their starting point.

While engaged in target practice at Selfridge Field, Mt. Clemens, Sec. Lieut. Samuel E. Lawyer of Detroit, a member of the organized reserves, was killed instantly. Flying an MB3A pursuit ship at an 800 ft. level his motor apparently cut out, and the machine did not straighten out after diving at a target. Observers on the ground could see nothing wrong with the rudder or elevator controls. Lawyer was thrown clear of the wreckage when his life belt snapped. The plane caught fire and was destroyed before mechanics were able to reach it. Lieutenant Lawyer was one of the chief combat instructors of the Third Aviation Center, Issoudon, France, during the war and has been an active and frequent flier at Selfridge Field since the Armistice.

Last week a Fokker PW2 pursuit plane, powered by a Curtiss D12 motor, made the trip from McCook to Selfridge Field and return. This ship is undergoing experimental observation by the Air Service and while here it engaged in combat practice with a Thomas-Morse. The two ships appeared to be equal as far as speed was concerned, with an advantage of climb and quicker turn in favor of the Fokker.

Preliminary test flights of the Stout eight passenger air pullman are now under way. Walter Lees of Dayton has been secured as test pilot.

Nicholas Aerial Shows

Since the first of the year the Nicholas Aerial Shows and Flying School at Marshall, Mo., under the direction of Russell B. Nicholas, have done a considerable amount of flying notwithstanding the cold and the bad weather which prevailed in that territory. All of their activities during this time have been limited to the instruction of students, which is under the direction of Aviator Joe Hammer, of Marshall, Mo.

All the instruction work is done on JN4D's.

The Company is now instructing several students to fly, and Mr. Nicholas states that the prospects for a prosperous business this season look very encouraging. The Company has also done a nice business in carrying passengers.

The Company is fortunate in having a man of wide experience in parachute jumping and stunt performing in the person of "Dare Devil" Donahue.

The Company also handles a large number of aircraft engines and spare parts, and are reconstructing, overhauling and installing in their ships.

Boston News

Snow, covering Boston Airport, is not keeping some active pilots on the ground. Lieut. George R. Pond, U.S.N.R.F., commandant of the Squantum naval reserve air station, recently secured the loan of a JN4 from the Army, equipped it with skiis, and proceeded to enjoy flying as though it had been in middle of July.

Capt. L. R. Knight, A.S., who is in command at the Boston Airport, next flew the plane and gave it the O.K. after disporting himself in the air for some time.

The reserve officers of Boston were also represented in these winter flying activities. Lieut. Frank C. Crowley, A.S.O. R.C., used up one hour's supply of fuel in flying over Boston and landing on the Charles river. The skiis can be substituted for wheels in a very short time. They are 4½ ft. long and 10 in. wide.

Floyd J. Logan is Active

Floyd J. Logan, the widely known jobber in airplanes, aircraft engines and accessories of Cleveland, Ohio, reports that his business has in recent months been the best since 1919, which makes him point to his prediction made in AVIATION, in November, 1922, that the low ebb in aviation was passed then.

British Air Estimates $95,000,000

Air estimates for the 1924-25 budget of the Britsh government, providing for $95,000,000 (£19,392,000), were submitted to the House of Commons on March 11 by William Leach, Under Secretary of the Air Ministry.

After detailing plans of organization and expenditure Mr. Leach mentioned that the government was experimenting largely with metal aircraft, and announced that to develop civil aviation it had agreed to subsidize that branch of the flying industry to the amount of £1,000,000 extended over ten years.

The Under Secretary alluded to the anxious inquiries by many why there was to be an increase in air armaments. The answer was that *the government was not increasing, but adjusting armaments between the three forces,* with the net result that there would be a considerable decrease in war expenditure for the year.

By March, 1925, eighteen squadrons would be ready for home defense out of fifty-two proposed within the next five years. The government had decided not to interfere with the previous government's air program, but if any international move for a reduction of armaments came along it would be free to accept it.

Negotiations, continued Mr. Leach, were proceeding for the purchase of six new airdromes, and about twenty-three new stations would ultimately be required. A joint Air Ministry and War Office committee had been appointed to inquire into the organizing and cooperation of airmen and ground troops. British orders for aircraft this year, he said, totaled £4,500,000.

The Burney Airship Scheme

Commander Burney has hopes that the British Labor Government may after all decide to support his plan for the establishment of airship service to India and Australia.

"They have the idea," the Commander said, "that if they were themselves to construct and run airships to India successfully there would be plenty of people anxious to take up the idea and the Air Ministry might perhaps get a better financial arrangement. But they forget that the real problem is not flying an airship to India, but making a popular service pay. We hope to be pioneers and yet make money, but if we succeed we could never secure a monopoly of airship work even if we wished it. There is plenty of room in the world for others who want to take up airships. They can develop other routes or actually compete with us with perhaps larger and faster aircraft."

France Honors Aviators

Sadi Lecointe, France's noted aviator and holder of many altitude and speed records, has been promoted to be an Officer of the Legion of Honor.

Mlle. Adrienne Bolland is created a Knight of the Legion of Honor for her exceptional services in the cause of French aviation in South America. She is the first woman to make an airplane flight across the Andes, accomplishing the feat on April 1, 1921.

New Spanish Air Force Chief

General D. Jorge Soriano Escudero has been appointed director-general of the Spanish army air service in place of General D. Francisco Echague, who recently reached the age limit.

General Escudero is an Engineers Corps officer with a distinguished military record. He commanded the Spanish air forces in Morocco, 1921-22.

European Air Mail Plans

At a conference held at the Hague between the postal authorities of Great Britain, Holland, Germany, Denmark, Sweden and Norway it was decided to urge the creation of a through air mail service from Manchester to Petrograd via London, Amsterdam, Copenhagen, Malmoe and Stockholm.

British Pilots' Trade Union

A large number of British commercial pilots recently formed a Trade Union. Colonel Bristow has accepted the presidency of the Union.

The Way to Travel

Charles Dickinson, president of the Aero Club of Illinois, who is 65 years young and a certified airplane pilot, is indefatigable in demonstrating how the airplane can be used for saving time in business affairs. Here is what he did on Saturday, March 1, according to the Chciago *Daily News*:

"Called to Dayton, Ohio, on business Saturday morning, Mr. Dickinson borrowed the swift air coupe recently designed by Elmer Partridge, a Chicago aviator. Partridge left Ashburn field at 8 a. m. with his passenger and landed in Dayton at 11:15. Mr. Dickinson's business had been attended to by 2 o'clock and at 5:20 the plane was back in Chicago again.

"Sunday morning a business associate at Lake Geneva wished a conference. The coupe was rolled out again, Partridge and Dickinson took off for Lake Geneva and at noon were back at the field, the conference over.

"A nonflying cab was waiting at the field. As the plane landed Dickinson jumped from the machine to the other and in a few minutes was aboard the Twentieth Century Limited on his way to New York.

"Partridge's plane is equipped with a heated enclosed cabin with seats for three. It is capable of 80 mi./hr."

Successful Flying Exhibitions

R. W. Shrock, manager and pilot of the North Central Aviation Co. of Marceline, Mo., reports that on Feb. 15 last he closed a successful flying season with his aerial circus which has been appearing in small towns in the southern part of Oklahoma and Texas. Mr. Shrock states that he has had "as many as 8000 to 9000 people come to see our shows given in small towns of 3000 population," and emphasizes the accuracy of this statement. The public in the Southwest, Mr. Shrock adds, is taking much more interest in aviation than they did last year.

Beginning April 1 the training of several student pilots will be undertaken by Mr. Shrock.

France Takes over Aero Engineering School

The "Ecole Supérieure d'Aéronautique" of Paris, the oldest institution in the world teaching aeronautical engineering, has been taken over by the French government and will be operated in the future as a State institution. The E.S.A. was instituted in 1910 by private initiative and has produced a large number of capable aircraft designers. The duration of the courses is three years.

Croydon to be Improved

The British Air Ministry has decided to spend £1,250,000 to improve Croydon airport, London. Among other things it is proposed to build in the center of the field concrete landing platforms which the passengers will reach through underground passages. The purpose of this innovation is to facilitate airway operations.

More Aircraft for Spain

A Spanish naval aviation mission which recently visited British aircraft plants has placed an order for twelve amphibian flying boats of a new type with the Supermarine Aviation Works at Southampton. The mission has also purchased a number of aircraft from the Aircraft Disposal Company.

Local Air Lines Discontinued

The French Trans-African Air Lines which operated various local services in French Africa (Algiers-Biskra-Touggourt, Dakar-Bamako, etc.) has stopped its services on account of the French air department discontinuing the subsidy in 1924.

Another Altitude Challenger

Georges Barbot, the French pilot who will be remembered for flying a Dewoitine light plane in this country last spring, recently made an altitude flight of 10,500 m. (34,440 ft.), using a Dewoitine pursuit plane.

Aerial Advertising by Night

The Night Aero Advertising Corp. of New York expect to start night flying over New York this month. The company is now considering the licensing of outside territory.

Russian Air Activities

A recent decree of the Russian Soviet government places all Russian civil air activities under the civil aviation department of the Red Air Fleet. Aircraft within the territory of the republic must be registered and assigned to one of the airdromes, and every airplane pilot who makes flight must be similarly registered and assigned to one of the airdromes. The requirements relative to registration apply to aircraft of every kind, including airplanes, airships, captive and free balloons, helicopters, etc.

* * *

Commandant Djevalkovski, chief of the Russian air force, recently sojourned in Berlin, Germany, for the purpose of purchasing aeronautical equipment.

* * *

The success which has attended the more or less forcible popularization of aviation in Russia through the efforts of the Soviet government may be gathered from the fact that the Society of Friends of the Red Air Fleet is reported to number *350,000* members. During the first months of the life of this association a total of 3,000,000 gold rubles has been subscribed by Russian workmen for the expansion of the Soviet air force. With these funds several military airplane squadrons have been organized, and flying schools and aircraft factories have been given financial assistance.

This society, which has branch organizations throughout the territory of the Soviet republic, distributed in 1923 over 3,000,000 copies of aeronautical propaganda material, such as pamphlets, postcards, flyleafs, etc. The appeal in behalf of a strong Soviet air force was partly based on communistic and partly on nationalistic grounds.

* * *

Russian establishments manufacturing aircraft and aeronautical engines and equipment at the beginning of 1924 were as follows:

1. The Dux factory, of Moscow, which manufactures under license four DeHavilland planes per month, and employs 750 workmen;
2. The Moskwa factory, of Moscow, producing four Avio type planes per month, and employing 350 workmen;
3. The Bolshevik (ex-Gnome) factory of Moscow, which constructs six 180 hp. and 220 hp. Hispano-Suiza engines per month, and is studying the manufacturing possibilities of the Liberty engine;
4. The Russo-Batigny factory of Petrograd, which builds 240 hp. Renault engines and employs 600 workmen;
5. The Motor factory of Moscow, which produces ten 110 hp. Le Rhone engines per month and employs 200 workmen;
6. The Anatra factory, originally located at Odessa, but now situated at Taganrog, which builds ten seaplanes per month and employs 120 workmen.

* * *

In addition to the above establishments the following named airplane factories, which existed prior to the revolution, are reported to have resumed airplane construction; Lebedieff, Shchetinin and Sluzarenko, all three of Petrograd. Negotiations are proceeding with a view to having the Russian Renault engine factory resume work with French technical assistance and under license of the mother house.

Nothing definite is known regarding the Russian Junkers firm which obtained from the Soviet government a concession for the manufacture of airplanes. However, it is of interest to note that the copper works in Kolchinghin recently produced a copper aluminum alloy, which, it is claimed, is in no way inferior to duralumin. The Russian aero-hydrodynamic institute is now building a four-seater monoplane which is entirely built of this new alloy and which will be fitted with the 100 hp. Bristol Lucifer radial air-cooled engine. This machine is of general Junkers lines.

Japanese Aviation Notes

Thirteen Japanese naval flying boats of the F5L type, built at the works of the Aichi Clocks Co. in Nagoya, Japan, are being put through a series of public experiments. To test their radius of action, two flying boats, belonging to the Sasebo Aviation Group will be flown from Sasebo to Formosa, and to determine their flying capabilities, eleven flying boats, belonging to the Yokosuka Aviation Group, will be employed for bombing, torpedo dropping and other offensive operations.

Japanese aviators assigned to the Tokorozawa Aviation School recently conducted experiments of flying planes equipped with sled landing gears. Japanese aviation authorities expect, as a result of these experiments, to determine whether the fuel for the engines will stand the intense cold at 30 deg. below the freezing point and also what sort of cold-proof uniform is suitable for wear by aviators when flying in extremely cold weather.

According to the Japanese press there were only three fatalities in the Japanese naval air service during the past year, a record which far surpasses any other year since the creation of the Air Service in that country.

The total personnel in the Japanese Air Service numbers 35,049 men. In 201 days of flying, 18,738 flights were made, for a total of 7,450 hr. This means that there was one casualty for every 2,483 hr. flown. It is claimed that this is a remarkable decrease compared with the figures recorded in Europe and America since the close of the World War; that is, one fatality to between 800 and 1,500 hr. in Great Britain and the United States, and one fatality to 2,000 hr. in France.

The Airship's Fortieth Anniversary

The fortieth anniversary of the maiden flight of the airship France, which occurs on June 28, 1924, will be celebrated at Villacoublay, France, with appropriate ceremonies, including a meet for heavier-than-air and lighter-than-air craft.

The France, built by Col. Charles Renard and Lieutenant Krebs of the French army engineers' corps in 1884, was the first airship in the world to make a round trip from its starting place. Altogether the ship made seven flights, and returned five times to its point of departure, the longest flight lasting one hour. By virtue of its ability to fly against as well as with the wind, which no airship had accomplished before, the France solved the century old quest for the dirigibility of balloons.

This airship was 165 ft. long, 27½ ft. in diameter, and had a capacity of 66,000 cu. ft. The power plant consisted of an electric motor, expressly designed for the purpose, which weighed 220 lb., including the batteries, and developed 9 hp. A single propeller of large diameter was mounted on the forward end of a long car which was slung from the envelope by means of sleeve suspension. The control organs comprised a ballonet, a sliding weight and elevator for fore and aft trim, and a rudder. The best speed made was 14.5 mi./hr.

Airway Personnel's Strike

A strike was declared March 31 by the pilots and mechanics of the Imperial Air Transport Co., handling air mails and airplane passenger service from London to the Continent. Many business men who planned to fly to Paris, Cologne and other Continental cities were compelled to seek other routes while tons of goods and luggage awaiting dispatch to the Continent were delayed.

In addition to the wage dispute between the pilots and the new combine which took over four old British air transport companies on April 1, the pilots also are dissatisfied with the proposal that the director of the new company should decide when a machine should fly and what weight it should carry instead of leaving the decision to the pilot.

Insurance on ZR3

It is reported from Berlin that the airship ZR3, now under construction for the U. S. Navy at the Zeppelin factory, has been insured for the sum of £600,000. The insurance rate is 6½ per cent, of which 5 per cent covers the proposed flight from Germany to Lakehurst, and ½ per cent the trial flights. The insurance covers all hazards due to fire, structural breakage and faulty operation.

The dispatch in question incidentally refers to the ZR3 as the Amerika (with a *K*).

Civil Aviation in Canada

From a summary of Civil Aviation Certificates and Licenses issued by the Royal Canadian Air Force on March 31, 1924, it appears that there are in Canada eleven Private Air Pilots, twenty-six Commercial Air Pilots, 213 Air Engineers, fifty-seven registered Civil Aircraft and twenty-nine licensed airports.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Orders

Capt. Henry J. F. Miller, A.S., Fifth Corps Area Org. Res., Fort Thomas, to Chief, Militia Bureau, for duty in his office, after leave granted.

Two months, 14 days' leave to Lieut. Col. Arthur G. Fisher, A.S., July 30 to not later than Oct. 15.

Resignation Sec. Lieut. Walter Francis McGinty, A.S., accepted.

Following-named A.S. officers designated students, 1924-25 course, Command and General Staff School, Fort Leavenworth, Kans., reporting between Aug. 20 and Sept. 3, 1924: Lieut. Col. John H. Howard, commandant, A.S. Flying School, Kelly Field; Maj. Ira Longanecker, Inspector General, Office, Ins. Gen., Washington; Majs. Lawrence W. McIntosh, Mc Cook Field, Albert L. Sneed, Langley Field, Leslie MacDill, McCook Field, John N. Reynolds, Langley Field and John B. Brooks, student, A.S. Tactical School, Langley Field.

Lieut. Col. Frank P. Lahm, G. S. (A.S.), from office, Asst. Chief of Staff, Washington, to A.S., Hqtrs., Ninth Corps Area, Presidio, San Francisco, effective July 1.

First Lieut. Leroy E. McGraw, A.S., orders to be issued by C.O., Philippine department, to Scott Field, completion present foreign service tour, for training next course, Balloon and Airship School, that station.

Capt. Henry C. White, A.S., from training, Balloon and Airship School, Scott Field, to Chanute Field, after leave granted.

First Lieut. Neal Creighton, A.S., Balloon and Airship School, Scott Field, to duty, that station, on expiration present sick leave.

Wrnt. Off. John W. Corcoran, Rockwell A.I.D., San Diego, to Clover Field, effective April 10.

Maj. Edward L. Hoffman, A.S., McCook Field, to Fifth Corps Area Org. Res., Cincinnati, Ohio, after leave granted.

Capt. Garth B. Haddock, A.S., training, Balloon and Airship School, Scott Field, to duty, that station.

Maj. James E. Chaney, A.S., relieved from duty as asst. military attache for aviation, Rome, Italy, on arrival his successor, Maj. Martin F. Scanlon, A.S., to return to U. S., reporting to C.A.S. for duty.

Maj. Martin F. Scanlon, A.S., relieved from duty, Office of Chief, Militia Bureau, Washington, to proceed to Rome, Italy, for duty as asst. military attache for aviation, American Embassy, that city.

Promotion to Major of Capt. Clinton Wilbur Howard, A.S., effective Feb. 28, announced.

Orders Dec. 12 First Lieut. Roderick N. Ott, A.S., amended as follows: Lieutenant Ott relieved from duty, Brooks Field, effective Feb. 11, to proceed, after leave granted, to Fort Hamilton by April 27, and accompany recruits on transport sailing New York City May 1 for Canal Zone, where he will report to C.O., Panama Canal department, for duty with A.S., that station.

Ten days' leave to Capt. Lynwood B. Jacobs, A.S., from July 1.

First Lieut. Arthur Wellington Brock, jr., A.S., promoted to Captain, effective March 1.

One month 15 days' leave to Maj. Oscar Westover, A.S., from April 1.

Eligible for Retirement

Six master sergeants of the Air Service, U.S.A., will become eligible for retirement between now and Dec. 31, 1924. They are: Harry V. MacKnight, Chanute Field, Ill.; Fred Parkins, Hawaiian Department; Birdie E. Sauers, Kelly Field; Samuel S. V. Schermerhorn, Ross Field, Calif.; Thomas H. Dix, Kelly Field; Thomas J. Zimmerman, Hawaiian Department.

Preserving the Historical Continuity

The Secretary of War announces that in order to preserve the historical continuity of certain units of the Air Service, the units listed below are reconstituted and consolidated with present units.

Former Unit	*Disposition of Former Unit*	*Present Unit*
1st Purs. Group Hq.	Disb. in the A.E.F. January, 1919.	1st Pursuit Group Hq.
1st Day Bomb. Group Hq.	Disb. in the A.E.F. November, 1918.	2d Bomb. Group Hq.
2d Aero Sq.	Redes. Squadron "A," Kelly Field, Tex., July, 1918	2d Obs. Sq.
3d Aero Sq.	Redes. Squadron, "A," Post Field, Okla., July, 1918.	3d Purs. Sq.
4th Aero Sq.	Redes. Squadron "B," Post Field, Okla., July, 1918.	4th Obs. Sq.
5th Aero Sq.	Redes. Squadron "A," Souther Field, Ga., July, 1918.	5th Obs. Sq.
15th Aero Sq.	Demob. at Hazelhurst Field, N. Y., Sept. 20, 1919.	15th Obs. Sq.
16th Aero Sq.	Demob. at Garden City, N. Y., May 17, 1919.	16th Obs. Sq.
23d Aero Sq.	Demob. at Garden City, N. Y., March 25, 1919.	23d Bomb. Sq.
24th Aero Sq.	Demob. at Park Field, Tenn,. Oct. 1, 1919.	24th Purs. Sq.
25th Aero Sq.	Demob. at Garden City, N. Y., June 14, 1919.	25th Bomb. Sq.
26th Aero Sq.	Demob. at Garden City N. Y., June 7, 1919.	26th Att. Sq.
40th Aero Sq.	Redes. Squadron "A," Selfridge Field, Mich., July 23, 1918.	40th School Sq.
41st Aero Sq.	Demib. at Camp Lee, Va., July 2, 1919.	41st School Sq.
42d Aero Sq.	Redes. Squadron "I," Wilbur Wright Field, Ohio, July, 1918.	42d School Sq.
43d Aero Sq.	Demob. at Garden City, N. Y., April 19, 1919.	43d School Sq.
44th Aero Sq.	Redes. Squadron "K," Wilbur Wright Field, Ohio, October, 1918.	44th Obs. Sq.
46th Aero Sq.	Demob. at Garden City, N. Y., Jan. 27, 1919.	46th School Sq.
47th Aero Sq.	Demob. at Camp Devens, Mass., July 6, 1919.	47th School Sq.
3d Air Park	Demob. at Selfridge Field, Mich., Oct. 7, 1919.	58th Serv. Sq.
6th Air Park	Demob. at Garden City, N. Y., July 21, 1919.	61st Serv. Sq.
72d Aero Sq.	Demob. at Garden City, N. Y., July 11, 1919.	72d Bomb. Sq.
103 Aero Sq.	Demob. at Garden City, N. Y., Aug. 18, 1919.	94th Purs. Sq.
Photo Sec. No. 1	Demob. at Garden City, N. Y., July 2, 1919.	1st Photo Sec.
Photo Sec. No. 2	Demob. at Garden City, N. Y., June 13, 1919.	2d Photo Sec.
Photo Sec. No. 3	Demob. at Garden City, N. Y., July 2, 1919.	3d Photo Sec.
Photo Sec. No. 4	Demob. at Garden City, N. Y., June 13, 1919.	4th Photo Sec.
Photo Sec. No. 5	Demob. at Garden City, N. Y., Aug. 8, 1919.	5th Photo Sec.
Photo Sec. No. 6	Demob. at Garden City, N. Y., June 13, 1919.	6th Photo Sec.
Photo Sec. No. 7	Demob. at Camp, Devens, Mass., May 2, 1919.	7th Photo Sec.
Photo Sec. No. 8	Demob. at Camp, Devens, Mass., May 2, 1919.	8th Photo Sec.
Photo Sec. No. 9	Demob. at Camp Lee, Va., July 1, 1919.	9th Photo Sec.
Photo Sec. No. 11	Demob. at Garden City, N. Y., July 2, 1919.	11th Photo Sec.
Photo Sec. No. 12	Demob. at Garden City, N. Y., July 2, 1919.	12th Photo Sec.
Photo Sec. No. 14	Demob. at Camp Dix, N. J., June 1, 1919.	14th Photo Sec.
Photo Sec. No. 15	Demob. at Garden City, N. Y., April 29, 1919.	15th Photo Sec.
Photo Sec. No. 20	Demob. at Camp Lee, Va., April 1, 1919.	20th Photo Sec.
Photo Sec. No. 21	Demob. at Camp Lee, Va., April 1, 1919.	21st Photo Sec.
Photo Sec. No. 22	Demob. at Camp Lee, Va., April 1, 1919.	22d Photo Sec.
Photo Sec. No. 23	Demob. at Camp Devens, Mass., May 7, 1919.	23d Photo Sec.
Photo Sec. No. 24	Demob. at Camp Lee, Va., April 1, 1919.	24th Photo Sec.

In the case of those former units which were redesignated as lettered squadrons of a certain field and functioned as flying school detachments, only so much of their records and history as pertains to their service up to the time of redesignation is perpetuated in the history of the units with which they are consolidated.

New Anti-Aircraft Regiments

The creation of a new anti-aircraft regiment, designated the 65th Coast Artillery (A.A.), for duty in the Panama Canal Department of the Army, is provided for in the reorganization plan which the Secretary of War approved Feb. 27, 1924.

The Coast Artillery Corps now includes one A.A. regiment, the 62d Coast Artillery, stationed at Fort Totten, N. Y., and three battalions, as follows: the 60th, in the Philippine Department; the 61st, at Fortress Monroe, Va.; and the 63d, at Fort Winfield Scott, San Francisco. Under the new organization plan these three anti-aircraft battalions will be organized and designated as regiments, with the same numbers as the battalions, in view of their expansion in time of war.

Furthermore, some of the newly formed Coast Artillery regiments which are charged with the harbor defense in the Continental United States will be so organized as to facilitate their conversion into anti-aircraft regiments, should the need arise.

A Change in Name

That exhaustive title, "Property Maintenance and Cost Compilation," has been changed to "Field Service Section." The Section will remain as a part of the Supply Division of the Air Service, at Fairfield, Ohio.

Capt. E. E. Adler, the head of this Section, is still at the Walter Reed General Hospital in Washington, and it is doubtful if he will return to Fairfield. Information was received at Fairfield that the new Chief of the Field Service Section to succeed Captain Adler will be Maj. George H. Brett, who is familiar with supply work in all its branches. Pending Major Brett's arrival Maj. A. W. Robins is in charge.

U. S. NAVAL AVIATION

Naval Orders

Lieut. Byron J. Connell, det. instr. Mass. Inst. Tech., Cambridge, Mass.; to temp. duty Bu. Aero.

Lieut. Calvin T. Durgin, det. instr. Mass. Inst. Tech., Cambridge, Mass.; to temp. duty, Bu. Aero.

Lieut. John S. Farnsworth, det. instr. Mass. Inst. Tech., Cambridge, Mass.; to temp. duty, Bu. Aero.

Lieut. John B. Lawrence, orders 3-8-24 modified; Det. Bu. Aero.

Lieut. Theodore C. Lonnquest, det. instr. Mass. Inst. Tech., Cambridge, Mass.; to temp. duty, Bu. Aero.

Lieut. Felix B. Stump, det. instr. Mass. Inst. Tech., Cambridge, Mass.; to temp. duty, Bu. Aero.

Lt. (jg) Earl B. Bark, despatch orders 3-8-24 to Bu. Aero. revoked; to continue duty Nav. Air Sta. N.O.B., Hampton Roads, Va.

Ch. Carp. Frederick A. Johnson, det. U.S.S. Langley; to Nav. Air Sta., Pensacola.

Carp. James J. O'Donnell, det. Nav. Air Sta., Pensacola, Fla.; to U.S.S. Langley.

Lieut. Ralph Kiely, det. Nav. Air Sta., Pensacola, Fla.; to U.S.S. Arkansas.

Lt. Comdr. Eugene E. Wilson, det. U.S.S. Bridgeport; to Bu. Aero.

Lt. (jg) Rowland D. Hill, det. U.S.S. Pennsylvania; to U.S.S. Langley.

Lt. (jg) George W. Mead, det. U.S.S. Henderson; to U.S.S. Trenton.

Lt. (jg) William J. Medusky, det. U.S.S. Sapelo; to U.S.S. Patoka.

Ens. John A. Pennington, to Observation Plane Squad. Six.

Carp. Charles H. T. Langenstein, det. Office Insptr. Nav. Aircraft David Douglas Co., Santa Monica, Calif.; to Navy Yard, Puget Sound, Wash.

Lieut. Leland D. Webb, det. Observation Plane Squad. 6; to duty involving flying, Bu. Aero., Wash., D. C.

Lieut. Ben H. Wyatt, det. Nav. Air Sta., Anacostia, D. C.; to Nav. Air Sta., San Diego, Calif.

Lieut. (jg) Cato D. Glover, det. U.S.S. Wright; to temp. duty Nav. Academy, Annapolis, Md.

Lieut. (jg) Frederick H. Ottaway, det. Aircraft Squads., Battle Flt.; to U.S.S. Aroostook. Despatch orders 3-10-24 to U.S.S. Brant revoked.

Lieut. Thomas P. Jeter, det. Bu. Aero., Navy Dept.; to temp. duty Naval Academy, Annapolis, Md.

Lieut. Conrad A. Krez, det. Aircraft Squads., Scouting Flt.; to Aircraft Squads., Battle Fleet.

Lieut. (jg) Roscoe L. Bowman, det. Nav. Air Sta., Pensacola, Fla.; to temp. duty Nav. Academy, Annapolis, Md.

Test of New Scouting Plane

An improved type of scouting plane of the boat type of construction has been under test with the Fleet in recent maneuvers and gives every prospect of improved performance, radius and dependability.

The new plane is an improved design of the F5L which has been in use in the scouting squadrons of the air fleet since the war. The improved design was evolved by the Naval Aircraft Factory at Philadelphia and is powered with two 525 hp. Wright T2 engines. The type has been designated the PN7 in official parlance. It represents the application of the high lift wing to flying boat construction with increased aerodynamical efficiency. As a result of the improved wing design the total span of the wings has been reduced by approximately 25 ft. below that of the F5L. The boat construction is essentially the same as that of the older type, allowing for a crew of five men to be carried, including two pilots, mechanics and radio men. The increased power afforded by the new Wright T type engines has given added speed to the craft. For this reason it has operated in a class by itself as a unit in the aircraft squadrons. In long jumps of several hundred miles the PN7 cruising at 78 knots has outdistanced its slower companions and at times has even held its own in formations with landplanes. The PN7 has a full speed with wide open throttle of nearly 100 mi./ hr.

A tribute to the reliability of the craft, contained in a recent report to the Bureau of Aeronautics of the Navy Department is expressed as follows: "During the 2500 mi. flight from Philadelphia to Culebra, Porto Rico, the only attention the engines required was the replenishing of gasoline, water and oil." The Naval Aircraft Factory is at present working on the production of a metal hull design of the PN7 which will, it is expected, give even more rugged qualities for operation at sea.

CALENDAR OF AERONAUTICAL EVENTS

March 25.	Start of the British World Flight, Southampton, England.
April 6.	Start of World Flight of the U. S. Army Air Service, Seattle.
April 23.	National Balloon Race, San Antonio, Tex.
June 3-11.	International Aircraft Expositon, Prague, Czechoslovakia.
June 15.	Gordon Bennett International Balloon Race, Brussels, Belgium.
June 21.	Annual F.A.I. Conference, Paris, France.
June 22.	Commodore Beaumont International Cup Race for high speed airplanes, Istres, France.
July 5-6.	Zenith International Airplane Efficiency Race, Paris, France.
August.	"Tour de France des Avionnettes." International Round-France race for light airplanes.
Oct. 2-4.	International Air Races, incl. Pulitzer Trophy Race, Dayton, Ohio.
Oct. 24-25.	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.

Aircraft Squadrons, Scouting Fleet

On March 17, Vice Adm. N. A. McCully hoisted his flag on the U.S.S. Wright, flagship of the Aircraft Squadrons, Scouting Fleet. He will remain on the Wright until her arrival at Guantanamo after the completion of the combined fleet maneuvers.

On March 23 orders for the departure of the Aircraft Squadrons, Scouting Fleet, were modified to permit their joining in the final fleet exercises at Culebra instead of leaving for Guantanamo on March 24, as originally planned. Upon receiving this information targets were immediately set out for live bombing by scouting and torpedo planes during the remainder of the stay at Culebra.

The return to the States will start about April 18, Mine Squadron 1 joining with the Wright, Sandpiper and Teal in guarding the passage of the twenty-four planes North. En route north the Gulf of Batabano, Cuba, will be photographically surveyed from the air by planes of the Scouting Plane Squadron 1. This will advance the mapping of this area by at least a year.

It is planned that all units of the Aircraft Squadrons will arrive at Hampton Roads by May 10.

Airship Tender Patoka

The U.S.S. Patoka has been detached from duty with the Naval Transportation Service and has been assigned to Aircraft Squadrons, Scouting Fleet, as a tender for the Naval airship Shenandoah.

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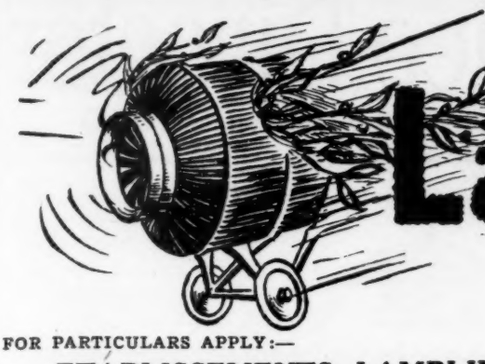

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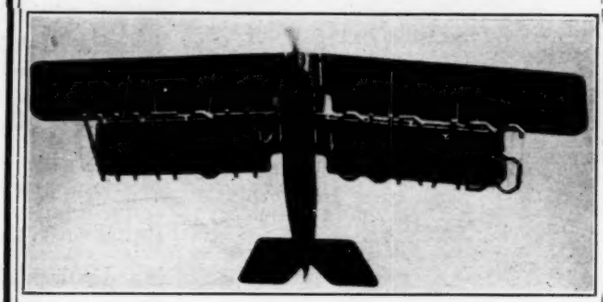

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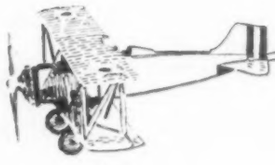

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